



# 6X DVD-ROM Internal IDE Option Kit

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*User's Guide*

OPTIONS  
*by IBM*

**Note:** If you are using this product in the United States, Canada, or Puerto Rico, be sure to read the information under Appendix F, “Warranty and notices” on page 3-27 before using this information and the product it supports.

*For all other countries, the warranty terms and conditions applicable in the country of purchase are available from IBM or your reseller.*

### **First Edition (January 1999)**

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## Safety: Read first



**CAUTION:** Read the Safety Information in the Appendix, page 3-1, before installing this product.

**Bitte beachten:** Vor der Installation dieses Produkts bitte die Sicherheitsinformationen im Anhang (Seite 3-1) durchlesen.

**ATTENTION:** Lire les Consignes de Sécurité en Annexe, page 3-1, avant d'installer ce produit.

**Precaución:** Antes de instalar este producto, lea la información sobre seguridad que aparece en el apéndice, páginas 3 a 1.

**注意:** この製品をインストールする前に、付録ページ 3-1 の安全に関する表示をお読み下さい。

**ATTENZIONE:** Prima di procedere all'installazione di questo dispositivo, leggere le Informazioni sulla sicurezza nell'Appendice a

**ADVERTÊNCIA:** Leia a informação sobre segurança no Apêndice, página 3-1, antes de instalar este produto.

**OPOZORNĚNÍ:** Před instalací tohoto výrobku si přečtěte Informace o bezpečnosti v Dodatku, str. 3-1.

**BEMÆRK:** Læs sikkerhedsinformationen i tillægget, side 3-1, før du installerer dette produkt.

**LET OP:** Voordat dit produkt wordt geïnstalleerd dient de informatie over veiligheid in de bijlage op pagina 3-1 gelezen te worden.

**ATTENTION:** Avant d'installer ce produit, veuillez lire les renseignements en matière de sécurité à la page 3-1 de l'Annexe.

**VAROITUS:** Lue liitteen sivulla 3-1 olevat turvallisuusohjeet, ennen tämän laitteen asentamista.

**זהירות:** קרא את הוראות הבטיחות המופיעות בנספח, עמ' 3-1, לפני התקנת מכשיר זה.

**FIGYELMEZTETÉS:** Mielőtt beszerelné a terméket, olvassa el a függelék 3-1 oldalán található biztonsági információkat.

**주의:** 본 제품을 설치하기 전에 부록의 3쪽 1항에 있는 안전 수칙을 숙독한다.

**ADVARSEL:** Les informasjonen om sikkerhet i Appendiks, side 3-1, før du installerer dette produktet.

**UWAGA:** Przed zainstalowaniem tego wyrobu należy przeczytać informację dotyczącą bezpieczeństwa w Załączniku na str. 3-1.

**CUIDADO:** Leia as Informações de Segurança no Anexo, página 3-1, antes de instalar este produto.

**小心:** 請在安裝本產品之前仔細閱讀3-1頁附錄中的安全信息。

**Opozorilo:** Upoštevajte varnostna obvestila v dodatku, stran 3-1., preden napravo instalirate.

**WARNING:** Läs säkerhetsinformationen i bilagan, sid. 3-1 innan du installerar denna produkt.

## ***Registering your option***

Thank you for purchasing OPTIONS by IBM. Please take a few moments to register your product and provide us with information that will help IBM to better serve you in the future. Your feedback is valuable to us in developing products and services that are important to you, as well as in developing better ways to communicate with you. Register your option on the IBM Web site at:

<http://www.pc.ibm.com/register>

IBM will send you information and updates on your registered product unless you indicate on the Web site questionnaire that you do not want to receive further information.

## ***About this book***

This manual contains information on the IBM 6X DVD-ROM Internal IDE Option Kit. It is divided into the following parts:

This book is divided into three parts:

Part 1 contains installation and usage instructions for the IBM 6X DVD-ROM Internal IDE Option Kit, the REALmagic Hollywood Plus MPEG-2 Playback Card, and the DVD Station software.

These instructions are given in the following languages:

- English
- German
- French
- Spanish
- Italian
- Brazilian Portuguese
- Japanese

Part 2 contains care and maintenance instructions for the DVD-ROM drive and the discs used with the drive.

Part 3 contains:

- Safety information
- Product specifications
- Device driver configuration settings
- Problem solving
- Help and service information
- Warranty, notices and trademarks

**Note:** The illustrations in this manual might be slightly different from your hardware.





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## Part 1: Installation and usage guide

### *Product description*

The IBM 6X DVD-ROM Internal IDE Option Kit can read both DVD-ROM discs and CD-ROM discs. It also reads many other CD and DVD formats, including DVD video, Video CD, and audio CD formats. It also reads multiple-session, extended architecture (XA) discs, such as the Kodak Photo CD. When used as a CD-ROM drive, this drive delivers data at up to 24 times the standard CD-ROM speed (24X).

The DVD-ROM drive is designed for installation in a personal computer that uses the integrated drive electronics (IDE) or the enhanced IDE (EIDE) architecture.

This section provides you with installation instructions for the DVD-ROM drive and the MPEG-2 card. It also provides instructions for using the DVD Station software.

In addition to this book, the option package includes:

- IBM 6X DVD-ROM Internal IDE Option Kit
- Four mounting screws (M3 x 5 mm, slotted)
- IDE cable for connecting two IDE devices
- Two faceplates for use with certain systems
- Two internal audio cables
- REALmagic Hollywood Plus MPEG-2 Playback Card
- Mini jack external audio cable
- S-Video to composite converter cable
- VGA pass-through cable
- REALmagic Hollywood Plus Driver Diskette*
- REALmagic Hollywood Plus Application Diskette*
- Video CD
- 6X DVD-ROM Internal IDE Drive Option Diskette*
- Laser Safety Guide*

**Note:** The REALmagic Driver Diskette, Application Diskette, and Video CD may be distributed on one CD or as separate items.

Contact your place of purchase if an item is missing or damaged. Be sure to retain your proof of purchase. It might be required to receive warranty service. See Appendix E, "Help and Service Information" on page 3-25 for technical support information.

## *Before you begin*

Before you install the drive, be sure that your computer meets the following system requirements.

- Intel Pentium 133 Mhz or better
- 16 MB RAM or more
- 3.5-inch diskette drive
- Available PCI slot on computer's main board
- Available drive bay
- Microsoft Windows 95 OSR2 or Windows 98 operating system
- Available IDE connection
- SoundBlaster compatible sound card
- Amplified stereo speakers

## Handling instructions

Before installing or otherwise handling the DVD-ROM drive, take note of the following guidelines.

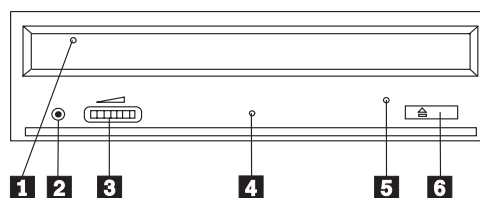
To protect your DVD-ROM drive during installation, observe the following precautions.

Keep the DVD-ROM drive and the MPEG-2 card in their anti-static bags until you are ready to install them. Limit your movement when installing; movement can cause static electricity buildup.

Handle the drive with care. Dropping or jarring the drive can damage the components inside the drive housing.

Do not force insertion of the power cable. Doing so might damage the connector or the drive.

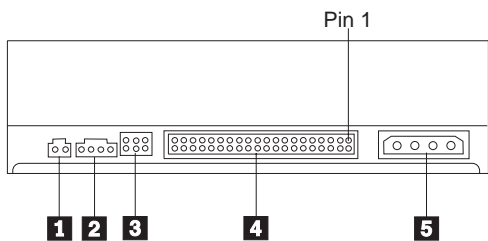
## Front view of the drive



- 1 Disc drawer
- 2 Headphone jack
- 3 Volume control
- 4 Busy indicator light

- 5 Emergency eject hole
- 6 Open/close button

### Rear view of the drive



- 1 Reserved
- 2 Audio output connector
- 3 Configuration jumpers
- 4 IDE interface connector
- 5 Power connector

Read the following information before you start your installation. The installer of the drive will have to complete the following steps:

Determine which IDE port to use, and the corresponding configuration setting

Set the configuration jumper on the drive (and possibly make changes to the configuration settings of other devices)

Physically install the drive in a drive bay

Configure the system

Install a device driver

If you do not understand these procedures, or are unsure about your ability to perform all the procedures described, have a qualified computer technician install the DVD-ROM drive for you.

## Installing the drive

### Step 1. Opening the computer

1. Turn off the computer and all attached peripherals.
2. Unplug the power cords for the computer and all attached devices.
3. Remove the cover from the computer.

### Step 2. Unpacking the drive

1. Take the bag the drive is packed in and touch it to an unpainted metal surface for at least two seconds. This will drain the static electricity from the package and your body.
2. Remove the drive from the bag.

If you must put the drive down, place the antistatic bag on a flat padded surface, such as a magazine, and place the drive on the bag with the component side facing up.

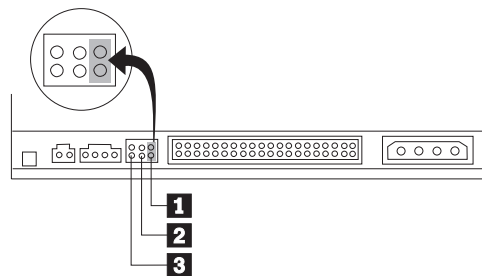
### Step 3. Selecting an IDE port

Newer computers typically have two IDE ports, each of which can support two devices. Typically the primary IDE port connects to your hard disk drive, and the other IDE port is the secondary port. The IDE port you select and the cable position you select will determine which configuration jumper setting you will use for the drive. See “Step 4. Setting the configuration jumper” on page 1-4 for instructions on setting the configuration jumper.

If your primary IDE port has a device connected as a master device, and your secondary port does not have a master device connected, you will install the DVD-ROM drive as the secondary master device.

If you already have a master device attached to your secondary IDE port, you must reconfigure the secondary master device for a slave position on either the primary or secondary ports. To do this, consult the documentation for the device you are reconfiguring.

### Step 4. Setting the configuration jumper



The illustration above shows the master 1 setting and the slave 2 setting. The other jumper setting is the cable-select 3 setting, which is not used on IBM computers. Configure the DVD-ROM drive by placing a jumper in the master setting.

### Step 5. Mounting the drive in the bay

**Attention:** Be sure to use the M3 x 5 mm mounting screws in the option package when you are driving screws directly into the drive. Using screws that are too long might damage the drive.

You can mount the DVD-ROM drive either horizontally or vertically in the computer. If you mount the drive vertically, you must secure any discs you place into the drive before the drive tray is closed, or the DVD-ROM drive will not be able to read the disc properly. For

further instructions on securing discs in a vertically mounted drive, go to page “Securing a disc in a vertically mounted drive” on page 2-2.

1. Slide the drive into the bay. Your computer may have specific required procedures for installing storage devices. Refer to the documentation that came with your computer for further instructions.
2. Align the drive-bay screw holes with the threaded holes in the drive housing or mounting bracket. Be sure to use the M3 x 5 mm mounting screws provided with this drive. Using the wrong size screws might damage the drive.
3. Thread the screws in loosely to check their position. Usually two screws are used on each side. Check to make sure the alignment is correct, then tighten the screws to secure the drive. *Do not overtighten.*

### Step 6. Installing the MPEG-2 card

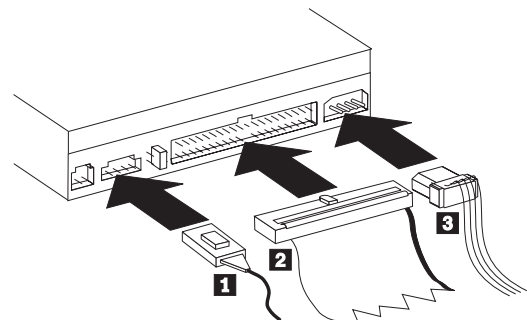
Included in your option package is the REALmagic Hollywood Plus MPEG-2 Playback Card. Follow these instructions to install the MPEG-2 card.

1. Locate an available PCI expansion slot on your computer’s main board. When you find an available slot, remove the slot cover screw and slot cover.
2. Before opening the anti-static bag containing the MPEG-2 card, touch the bag to a metal expansion slot cover on the back of your computer. This will drain the static electricity from the package and your body.

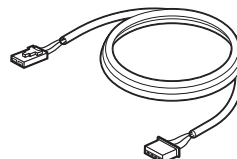
3. Open the bag and take out the MPEG-2 card. Insert it into the available expansion slot. Press down gently on the top edges of the board to make sure that all connecting points are fully seated.
4. Use the slot cover screw to anchor the card bracket into the expansion slot.

### Step 7. Attaching the cables to the drive

Connect the cables to the DVD-ROM drive as follows:



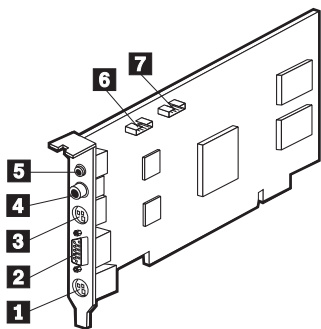
1. Connect the larger end of the included internal audio cable 1 to the audio output connector on the DVD-ROM drive. Here is an illustration of the internal audio cable.



2. Attach a 40-pin IDE-cable connector 2 to the IDE connector on the drive. Align the cable so that the color-coded edge is closest to the power cable connector 3. Use the IDE cable provided with this option if there is no cable attached to the IDE port.
3. Attach a four-pin power-cable 3 to the power connector on the DVD-ROM drive.

### Step 8. Attaching the cables to the MPEG-2 card

Follow these instructions to connect the MPEG-2 card to the DVD-ROM drive, your sound system or sound card, your video card, and your monitor. Refer to the following illustration if you have trouble locating any of the connections.



- 1 9-pin VGA input port
- 2 VGA output port
- 3 S-Video output jack
- 4 Digital audio output jack
- 5 Stereo output jack
- 6 Line Out port
- 7 CD In port

1. In "Step 7: Attaching the cables to the DVD-ROM drive", you connected an internal audio cable to the drive. Connect the other end of that internal audio cable to the CD In port 7 on the side of the MPEG-2 card.

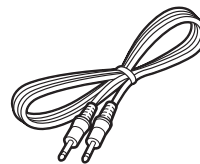
2. You have two options for connecting the MPEG-2 card to an audio output source.

Connect the MPEG-2 card to the CD Audio In port on your sound card. To do so:

- a. Locate the other internal audio cable included in the option package. Connect one end of that cable to the Line Out port 6 on the side of the MPEG-2 card.
- b. Connect the other end of the second internal audio cable to the CD Audio In port on your sound card.
- c. Connect your sound system to the Line Out jack on your sound card.

Connect the MPEG-2 card to your sound card externally. To do so:

- a. Connect the external audio cable to the stereo output jack 5 on the MPEG-2 card. Here is an illustration of the external audio cable:

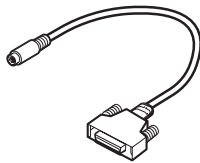


- b. Plug the other end of the external audio cable into the Line In jack on your sound card.

- c. Plug your sound system into the Line Out jack on your sound card.

**Note:** Use only one of the above methods to connect to an audio output source. If the included internal audio cable does not fit your sound card, use the external audio cable connection described above.

3. Disconnect your monitor cable from your existing video card or from the monitor connection on your main board.
4. Locate the VGA pass through cable included with this option. Here is an illustration of the cable.



Attach the 9-pin connector on the cable to the the corresponding 9-pin VGA input port 1 on the MPEG-2 card. Attach the VGA connector on the cable to your video card or the monitor connection on your main board.

5. Attach your monitor cable to the VGA output port 2 on the MPEG-2 card.

## Step 9. Completing the hardware installation

1. Be sure that the DVD-ROM drive and the MPEG-2 card are securely mounted and the connectors are firmly attached.
2. Be sure the cables do not interfere with the computer cover and do not block the power-supply fan blades or air-flow paths.
3. Reinstall the computer cover.
4. Reconnect all external devices.
5. Plug all power cords into electrical outlets.

## Step 10. Attaching the faceplates

This option package includes two faceplates which conform to the curved design of certain systems. If your computer system has a curved design, you can attach one of the included faceplates so that the front of the drive matches the exterior cabinet. Choose the faceplate that best fits your system, and attach it after you have mounted the DVD-ROM drive in the appropriate bay.

## Step 11. Updating your computer configuration

After you have completed the hardware installation, restart your computer. When you turn on your computer the configuration-setup information screen will be displayed on your screen. If you don't see this screen, check your computer documentation for information about accessing the configuration or setup utility program.

To see the configuration information for most IBM computers, press **F1** during startup when the graphic displays in the upper right corner of the screen. When you have finished reviewing the information, save the changes and exit.

## Step 12. Installing the device drivers

This section contains the instructions for installing device drivers for the DVD-ROM drive and MPEG-2 card.

**Note:** Be sure to read the README.TXT file for additional information about the device drivers.

## Installing the device driver for the MPEG-2 card

Follow these instructions to install the device driver for the REALmagic Hollywood Plus MPEG-2 Playback Card.

1. If you have not already done so, turn on your computer and start your operating system.

2. After the Windows logo screen, the **New Hardware Found** dialog box will appear to inform you that the operating system has detected a **PCI Multimedia Video Device**. In the next window, select **PCI Multimedia Video Device** and click **Next**.
3. Insert the disk labeled *REALmagic Hollywood Plus Driver Disk* into your diskette<sup>1</sup> drive; then click **Finish**.
4. Check the box next to **Select the best driver for your device** and then click **Next**.
5. Make sure that the correct drive is checked; then click **Next**.
6. Click **Next** again.
7. When the computer has finished copying the driver files, click **Finish**.
8. When installation is completed, remove the *Driver Disk* and restart your operating system.

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<sup>1</sup> If the REALmagic software and drivers are delivered on a CD-ROM, insert the REALmagic CD into the DVD-ROM drive.



## Installing the device driver for the DVD-ROM drive

In most instances, Microsoft Windows 95 OSR2 and Windows 98 will automatically detect the DVD-ROM drive and will already have the necessary device drivers. However, the standard Windows 95 and Windows 98 drivers will not allow you to access the DVD-ROM drive through a DOS session.

If you are using the DVD-ROM drive with DOS, Windows 3.x, OS/2 or Windows NT, or if you want to access the DVD-ROM drive through a DOS session in Windows 95 or Windows 98, you will need to install the DOS device driver from the *IBM 6X DVD-ROM Internal IDE Option Kit Option Diskette*. This device driver will allow you to access the DVD-ROM drive in DOS, or to access the DVD-ROM drive through an open DOS session in Windows 3.x, OS/2, Windows 95, Windows 98, or Windows NT.

**Note:** In DOS mode, the DVD-ROM drive will only function as a CD-ROM drive. You will only be able to access data discs in this mode.

Follow these instructions to install the device driver.

1. Insert the *IBM 6X DVD-ROM Internal IDE Option Kit Option Diskette* into the diskette drive.
2. Type `A:CDSETUP` in a command line and press Enter.
3. Click **Setup**.

4. Follow the on-screen instructions to install the software.
5. Click **Exit** after software installation completes.
6. Restart your computer so the new settings take effect.

Some IBM Windows NT pre-loads contain a **piixide** device driver. This device driver provides DMA support and replaces the Windows NT native **atapi** device driver. The drive will **not** work if both the **atapi** and **piixide** device drivers are enabled at the same time. To see if both device drivers are enabled at the same time, follow these instructions.

1. Click the **Start** button and select **Settings** and then **Control Panel**.
2. Double click **Startup**; if both drivers are enabled, then change either the **piixide** or the **atapi** driver to **Disabled**.

## Step 13. Installing DVD Station

Follow these instructions to install the DVD Station playback software.

1. Insert the disk labeled *REALmagic Hollywood Plus Application Disk* into your diskette<sup>2</sup> drive.
2. Click the **Start** button and select **Run**
3. Type `X:\setup` in the command box, where *X* is the letter assigned to your diskette drive.

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<sup>2</sup> If the *REALmagic* software and drivers are delivered on a CD-ROM, insert the *REALmagic* CD into the DVD-ROM drive.

4. Click **Next**.
5. The setup program will prompt you to choose from two options:
  - Install the REALmagic applications
  - Change the DVD Region CodeIf you are installing the REALmagic Hollywood Plus MPEG-2 Playback Card for the first time, check the install option and click **OK**.
6. Click **Next** to accept the default directory, or click **Browse** to choose a different location.
7. After installing the application files, the setup program will prompt you to choose a DVD Region Code. Choose the code which corresponds to your country.
8. Click **OK**. The setup program will display a message indicating the successful completion of the region code setup.

**Note:** You are allowed to change the region code a maximum of five times. Also, the setup program will not ask you to set the Region Code if you are reinstalling the card in the same region code at a later time. If you need to change the region code because you have relocated to another region, see “Changing the DVD region code” on page 1-13.
9. At the end of the installation process, you will see the following message displayed:

Setup has finished installing the REALmagic software. In order to have the board ready for operation, it is required to execute a 'Calibration' routine which will blank your screen for a few seconds.

You can also execute this operation at a later time by selecting the 'Auto Calibration' option from the 'REALmagic Configuration' icon.

Proceed with calibration?

Click **Yes** to proceed.

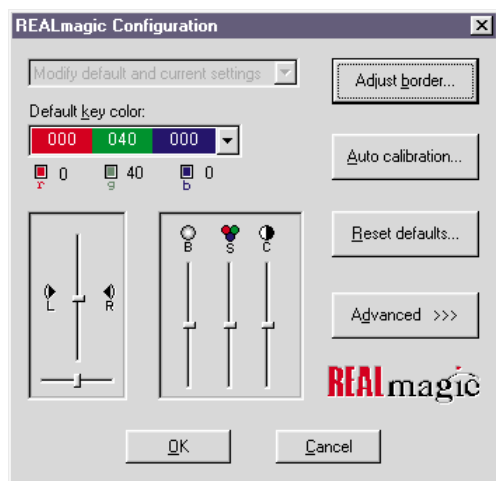
10. Click **Finish** to complete installation of the REALmagic DVD Station software.

#### **Step 14. Border adjustment and color calibration**

The REALmagic Hollywood Plus MPEG-2 Playback Card uses overlay technology to display MPEG video on top of the normal VGA graphics on your computer. Because this overlay varies depending on the video display mode used, you must adjust the position and size of the MPEG video window for each display mode you use.

Follow the steps below to complete the Border Adjustment and Color Calibration processes.

1. Start the configuration program by clicking the **Start** button and selecting **Programs, REALmagic Hollywood Plus, and REALmagic Configuration**. Here is an illustration of the REALmagic Configuration dialog box.



In the dialog box, click **Auto calibration...**. The display will flicker for approximately thirty seconds. If the auto calibration does not adjust the border correctly, go on to the next step.

2. From the configuration dialog box, click the **Adjust border** button. The Border Adjust dialog box will appear on your screen. Use the arrow buttons in the dialog box, or the arrow keys on your keyboard, to align the black window within the pink window. Press the plus (+) key on your keyboard to widen the black window. Press the minus (-) key on your keyboard to make the black window more narrow. The black window must cover the pink window exactly. When the two windows are aligned, click **OK**.

3. If the auto color calibration fails, restart your computer and try the auto calibration function again. If it fails again, you will need to perform a manual color calibration. To calibrate the color manually:
  - a. Click the **Start** button and select **Programs, REALmagic Hollywood Plus, and REALmagic Configuration...**
  - b. The REALmagic Configuration dialog box will appear on your screen. Click the **Advanced >>>** button.
  - c. At the next screen, click the **Manual calibration** button.
  - d. The Dialog window will appear on your screen. Use your mouse to move the slider bar (marked R) up or down until the image in the big box at the right looks like the image labeled "GOOD", which is on the left side of the Dialog window. Use the arrow keys on your keyboard to make fine adjustments.
  - e. When you have made the big box look as much like the GOOD image as you can, click the **Next** button.
  - f. Perform the procedure above eleven more times, for green and for blue, and so on.
  - g. When you have adjusted all twelve colors, click **Finish**.

If you want to reset the color calibration and border adjustment to the factory settings, you can click the **Default** button in the Border adjustment dialog box.

**Note:** The performance of DVD Station is dependent on the amount of video RAM that your computer contains. Depending on your video card, DVD Station may not support 16 or 32 bit color at all.

### **Step 15. Connecting the MPEG-2 card to your TV and stereo**

Once the MPEG-2 card and the DVD-ROM drive are installed in your computer, you can play audio or video CDs, and DVD video discs on your computer, using your computer monitor and computer speakers. If you want to see a video CD or DVD video on your TV, or hear audio CDs played through your stereo speakers, you need to connect the MPEG-2 card to those devices.

#### **Connecting the MPEG-2 card to your TV**

You have two options for connecting your TV to the MPEG-2 card. You can use a standard S-Video cable if your TV supports S-Video, or you can use the included S-Video to composite converter cable if your TV does not support S-Video.

If you are using S-Video, plug your S-Video cable into the S-Video output jack on the REALmagic Hollywood Plus MPEG-2 Playback Card ( 3 in the illustration on page 1-6). Plug the other end of the S-Video cable into the S-Video input jack on your TV.

If you do not have a TV which supports S-Video, you need to use the included S-Video to composite converter cable. Plug the S-Video end of this converter into the S-Video output jack on the MPEG-2 card,

and attach the other end of the converter to a standard extension cable and plug it into the cable input on your TV.

**Note:** Do not connect the DVD-ROM drive to your TV through a recording device such as a VCR. Doing so will cause a scrambled picture. You will not be able to record DVD movies through a VCR.

#### **Macrovision copyright notice**

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing purposes only, unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

## Connecting the MPEG-2 card to your stereo

There are two audio output jacks on the REALmagic Hollywood Plus MPEG-2 Playback Card. One is an analog output which will work with most stereo sound systems, including Pro Logic Surround Sound encoded systems. The other audio output jack is a digital output and is for use with Dolby Digital Surround Sound (DDS or AC-3) devices.

To connect your MPEG-2 card to your stereo sound system, make sure that the MPEG-2 card is connected to your sound card as detailed in "Step 8. Attaching the cables to the MPEG-2 card" on page 1-6. Then connect your stereo sound system to the LINE-OUT or SPEAKER port on your sound card. This will allow you to listen to both DVD/MPEG-2 audio and other types of audio through your stereo sound system.

If you have a stereo receiver or other sound device which supports DDS or AC-3 technology, you can connect that device to the MPEG-2 card directly by using the S/PDIF (digital) output jack on the REALmagic Hollywood Plus MPEG-2 Playback Card.

## Changing the DVD region code

The setup program for the DVD Station software will accept changes to the DVD region code up to five times. This feature allows you to change the region code if you relocate to a different region. You will not be able to change the code after the fifth time. Follow the instructions below to set and change the DVD region code.

1. From the taskbar, click the **Start** button and select **Run**.
2. Insert the *REALmagic Hollywood Plus Application Disk* into your diskette drive.
3. In the command box, type in `a:\setup` and click **OK**.
4. You will be prompted to choose one of the following options:
  - Install the REALmagic applications
  - Change the DVD region codeCheck **Change the DVD region code** and click **OK**.
5. Select the appropriate region code for the country you are in. Follow the instructions on your screen to complete the region code setup.

**Note:** Regionalization and Copy Protection (the DVD region code) uses the Content Scramble System (CSS) standard to prevent unauthorized duplication of the intellectual property rights distributed on DVD discs. It was originally requested by the Motion Picture Association of America (MPAA) to address video piracy, but is applicable to any content. CSS works by inhibiting the transmission

of unencrypted data from the PCI bus. Playback systems must license CSS in order to decode the encrypted data.

The CSS specification divides the world into six unique regions. Content designated for one region cannot be read by playback systems in another region. While CSS is used to prevent digital copies of the DVD content, another technology devised by Macrovision is used to prevent analog copies of the DVD content. The Macrovision standard is a scrambling system that has been widely used by the movie industry to prevent unauthorized duplication of video content using commercial VCRs. DVD playback systems must support both CSS and Macrovision copy protection standards.

## *Using the DVD Station software*

This section will describe how to use the DVD Station software which is included in your option package. It describes how to use the software to play movies in both DVD and Video CD formats, how to use data CDs containing MPEG files, and how to play audio CDs.

### **Starting DVD Station**

DVD Station will automatically detect the format of the disc loaded in the DVD-ROM drive, and the controls available for use in DVD Station change accordingly. Follow these instructions to start the DVD Station software.

1. Turn on your computer and start your operating system, if you have not already done so.
2. Insert a DVD disc, a Video CD, or a CD-ROM containing MPEG files into the DVD-ROM drive.
3. Click the Windows **Start** button; then select **Programs**, **REALmagic Hollywood Plus**, and **DVD Station**. The REALmagic DVD Station Control window will appear on your screen.
4. If the Auto-Play feature in DVD Station is enabled, DVD Station will begin playing the disc in the DVD-ROM drive as soon as it is inserted.

## DVD Station Control window

This section will describe the various controls available in the Control Window and what features are accessed by those controls. As you read this section, refer to the following illustration to help you locate the controls.



### Display panel

In the center of the DVD Station Control window is a display panel. This panel displays information about the current video or audio track. On the far left side of the display is the disc format type. To the right of the format type is the track number currently playing. To the right of the track number is the play time of the current track. To the right of the play time is the aspect ratio. Finally, on the far right of the display panel is the Repeat Mode indicator. At the bottom of the display panel is a Progress Bar, which shows how much of the track or video clip has been played. You can click on different parts of the Progress Bar to jump to specific parts of the current track.

### Volume control

The volume control is immediately to the left of the display panel, and is next to the custom buttons area. With this volume control slider you can control the audio level of the disc you are playing. Click on the slider and move it up or down using your mouse. At the top of the volume control slider is the **Mute Sound** button. Click this to mute the audio; click it again to resume the previous audio level.

## Standard buttons

Below the display panel is a row of buttons. These buttons are similar to the controls on a VCR. Here is a list of the buttons and their functions, going from left to right across the row. Refer to the illustration below to locate the buttons.



### Pause/play

Click this button to pause play, to begin playing the first track of a disc, or to resume play after pausing.

### Stop

Click this button to stop playing a disc.

### Eject

Click this button to eject the disc from the DVD-ROM drive.

### Rewind

Click this button to rewind. Click once to rewind at normal rewind speed (twice playback speed); click twice for rapid rewind (eight times playback speed).

### Fast forward

Click this button to fast forward. Click once to fast forward at normal fast forward speed (twice playback speed); click twice for rapid fast forward (eight times playback speed).

### Previous track

Click this button to skip to the previous track on the CD or DVD.

### Next track

Click this button to skip to the next track on the CD or DVD.

### Play mode or 10-key keypad

Click this button to select from three play modes: All, Random, and Play List. The display panel shows which play mode is currently active.

**All** is the default play mode. It plays all tracks on the disc in sequential order.

**Random** plays tracks in random order. This play mode does not work with DVD movies.

**Play List** plays tracks from a previously created play list. To create a play list, refer to the instructions on page 1-17.

When the disc in the drive has an interactive menu, the **10-key keypad** button displays instead of the Play Mode button. For information on the 10-key keypad button and its functions, see “10-key keypad” on page 1-22.

### Repeat mode

Click this button to toggle between **Play Once** and **Continuous Play** repeat modes. Click once to repeat the current chapter or track; click twice to repeat the entire title.



## Custom buttons

On the left side of the DVD Station Control window is the custom button area. There are four buttons in this area, plus an arrow button in the upper right corner of the custom button area which allows you to toggle to another set of controls (see “Picture controls” on page 1-20 for more information on the other set of controls).

### Display

The icon on this button looks like an VCR counter. Click this button to display the play time of the current clip, the audio language currently selected, and the name of the file. This information will be displayed in the upper left corner of your viewing window. Click the **Display** button again to turn off the display.

### TV Mode

The icon on this button looks like a TV. Click this button to switch the video from your computer monitor to your TV screen. The MPEG viewing window will close, and the video will play only on your TV. If you are viewing the video on your TV, click this button to return the video to your computer monitor.

### Open File

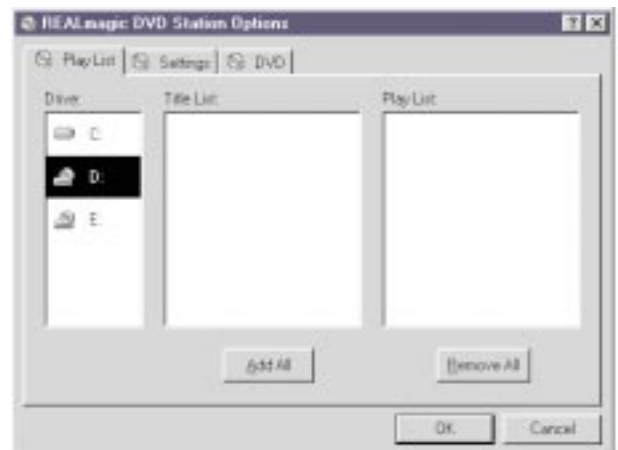
The icon on this button looks like an open file folder. Click this button to open and play MPEG files from your hard disk drive, your DVD-ROM drive, or your CD-ROM drive.

## Options Dialog

The icon on this button looks like a closed file folder. Click this button to open the DVD Station Options window. This window has three screen tabs across the top of the window.

Here is a list of the screen tabs in the Options dialog window, and the settings or functions available on each screen tab.

The **Play List** screen allows you to create a play list of MPEG files for use with the DVD Station Play List play mode. Here is an illustration of the Options window with this screen selected.



The Title List box shows which MPEG files are available on the drive you have selected. The Play List box shows which files are currently on the play list. To create a Play List:

1. From the Title List box, select which file you want to add to your play list. Using your mouse, drag that file over to the Play List box. To add all of the files listed in the Title List box, click the **Add All** button.
2. To remove one file from the Play List, click on that file and drag it to the Title List box. To clear the Play List, click the **Remove All** button. To change the playing order of the files in your play list, you can drag the files and reposition them.
3. Click **OK** when you have finished adding, removing, or changing the order of the files in your play list.
4. To access your play list, click the **Play Mode** button on the DVD Station Control window button bar until the word Play List is highlighted in the display panel.

The **Settings** screen is where you can enable or disable various DVD Station settings. Here is an illustration of the Options window with the Settings screen selected.



– **General box**

**Start detached**

Check this box to display the DVD Station Control window detached from the movie viewing window when the software is started.

**ToolTips**

Check this box to enable a special feature called ToolTips, which displays a pop-up box showing the function of each button in DVD Station.

**Keep aspect ratio**

Check this box to enable DVD Station to maintain the correct aspect ratio when the

viewing window is resized. This prevents distortion of the picture.

#### Always on top

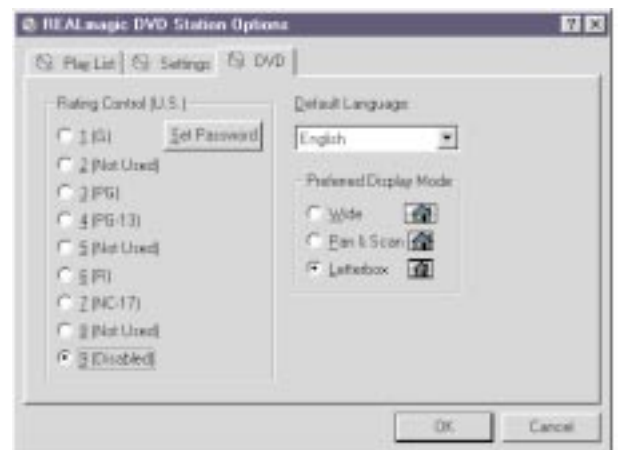
Check this box to cause the viewing window to display on top of all other windows. This prevents other application windows from appearing on top of the movie.

#### AutoPlay

Check this box to enable or disable the Windows Auto-Play feature on the DVD-ROM drive.

- In the **Audio Output** box you can select which type of audio output you are using. There are check boxes for analog stereo, digital PCM (Pro Logic), and digital AC-3 (Dolby Digital Surround Sound) sound.
- In the **TV** box you can select which video format your TV supports, if you choose to view MPEG video over your TV. There are check boxes for NTSC (U.S.) and PAL (Europe and other countries) formats.

The **DVD** screen displays special DVD settings. Here is an illustration of the Options window with the DVD screen selected.



#### Rating control

This is a list of rating levels which are recorded on some DVD movie discs. By checking one of these rating levels, you can limit play to only those discs which have a rating equal to or lower than the rating level you selected. There is also a button for setting a password. Once you have set the password, the rating levels can not be changed unless the password is entered correctly.

#### Default language

Most DVD movies support multi-lingual audio soundtracks. You may select the default language in this pull-down box. If the default language you

choose is not available on the DVD disc you are playing, DVD Station will use the default language on that particular disc.

#### **Preferred display mode**

Here you can select which type of aspect ratio you want to use to view your movie.

### **Picture controls**

In the upper right corner of the Custom Buttons area is a small arrow button. It is above and to the right of the Volume Control slider. Click this arrow button to display more customizable features. Here is a list of the additional controls and the features accessed by each.

#### **Picture control sliders**

From left to right, these sliders control the brightness, contrast, and color saturation of the movie viewing window. These controls do not affect other graphics on your computer monitor. Use your mouse to move the sliders up or down. Your audio may be muted while you are using the sliders.

#### **Image capture button**

Click this button to save a bitmap (BMP file) image of a movie frame. Note that due to copyright restrictions, this feature does not work with DVD video titles.

#### **Segment play (A-B)**

This feature allows you to repeat play of a specified segment of a movie. Click this button once to indicate the starting point of the segment. Click the button again

to indicate the ending point of the segment. The segment will play repeatedly until you click another button (such as Stop or Rewind).

#### **Slow motion play**

Click this button once to slow playback to half of normal speed. Click twice to slow playback to one-eighth of normal speed. Click the button a third time to resume normal playing speed. Audio is muted during slow motion play.

### **DVD navigation buttons**

On the far right side of the DVD Station Control window there are five navigation buttons and a joystick controller. Here is a list of the navigation buttons and the features accessed by each.

#### **Audio soundtrack language selector**

This feature only works with DVD discs that have been recorded with multiple language soundtracks. Click this button during play to select or change the audio soundtrack language. When this button is clicked, a pop-up menu appears showing the available languages on the disc. Click on the language you want to select.

#### **Camera angle selector**

This feature only works with DVD discs that have been recorded with multiple camera angles. Click this button during play to select or change the camera angle. When this button is clicked, a pop-up menu appears showing a list of numbers corresponding to the camera angles available. Click on the camera angle you want to select.

**Subtitle selector**

This feature only works with DVD discs that have been recorded with multiple language subtitles or closed captions. Click this button during play to select or change the subtitle language. When this button is clicked, a pop-up menu appears showing the available subtitle languages on the disc. Click on the language you want to select.

**Menu selector**

Some DVD discs have an onscreen menu function which allows you to access soundtrack language settings, camera angle settings, and subtitle options. Click on this button to access the onscreen menu, if it is available on the current disc.

**Title selector**

Some DVD discs contain multiple titles and contain a title menu. Click this button to activate the title menu. Use the joystick controller buttons to select a title from the menu.

**Joystick controller**

This group of buttons is used to navigate possible choices offered in DVD menus. Click on the UP, DOWN, LEFT, or RIGHT arrows to highlight the option you want to select. Click on the **Select** button in the center of the joystick controller to select the option.

**Playing a DVD disc**

Follow these instructions to play a DVD video or movie disc.

1. Turn on your computer if you have not already done so; press the **Open/close** button on the DVD-ROM drive to open the loading tray.
2. Insert a DVD disc into the tray and press the **Open/close** button again to close the tray.
3. Click the **Start** button and select **Programs, REALmagic Hollywood Plus, and DVD Station**. The DVD Station Control window and a viewing window will appear on your screen.
4. If the Auto-Play feature of DVD Station is enabled, the video or movie will begin to play. If it is disabled, click the **Pause/play** button on the DVD Station Control window.

## 10-key keypad

If DVD Station detects a DVD movie disc is in the DVD-ROM drive, it will display a **10-key keypad** button under the display panel instead of the Play Mode button. Clicking the 10-key keypad button will open a floating 10-key keypad which you can use to interact with some DVD movie discs that have menu selections and other options.

Here is an illustration of the title and chapter 10-key keypad.



Here is an illustration of the menu 10-key keypad.



On the keypad are number buttons and several buttons with arrows on them.

Click the **number** buttons to select an option from the onscreen menu.

Click the **left-to-right arrow** button to toggle from the title and chapter keypad to the menu keypad.

Click the **left-facing arrow** button if you need to make a correction.

Click the **up arrow** to return to the previous menu.

Click the **down arrow** to execute the option you have selected.

If the 10-key keypad is hidden by another window, click the **keypad** button on the Control window to bring the keypad to the foreground.

## Playing a Video CD

Follow these instructions to play a Video CD disc.

1. Open the DVD-ROM drive by pressing the **Open/close** button on the drive.
2. Insert a Video CD 2.0 disc into the tray and press the **Open/close** button to close it.
3. Click the **Start** button and select **Programs, REALmagic Hollywood Plus, and DVD Station**.
4. DVD Station will detect the Video CD in the DVD-ROM drive and will show the Video CD Control window. Click the **Pause/play** button on the Control window to begin playing the Video CD disc.

## Buttons on the menu keypad

The Video CD Control window has a menu keypad to the right of the display panel, instead of the DVD Control window's navigation buttons and joystick controller. Video CD 2.0 discs feature embedded playback controls. You may play a disc that prompts you with questions, and gives numbered options for responses. Use the **number** buttons on the menu keypad to make your selection. Use the **down arrow** button to execute your selection.

## Playing a Video CD 2.0 disc

When you press the **Pause/play** button to begin playing your Video CD disc, on most discs you will see a menu of songs on your viewing screen. The screen will show only the first half of the songs available on the Video CD. To select a song from the second part of the list, click the **Next track** button on the Control window. Once you have decided which song you want to play, enter the song number using the menu keypad and click the **Menu select** button on the Control window. The **Menu select** button is immediately to the right of the menu keypad display screen.

**Note:** Some Video CDs have different formats and do not require you to click the **Menu select** button. Some formats will work by clicking the **Pause/play** button after using the **Next track** button to select a song.

## Playing an audio CD

To play an audio CD, you can either use DVD Station or your Windows audio Playback utility. To use DVD Station to play an audio CD, follow the procedures below. For more information on using your audio playback software, see the documentation that comes with your operating system or your computer.

1. Press the **Open/close** button on the DVD-ROM drive to open the loading tray, and load an audio CD into the tray.
2. Click the **Start** button on the Windows desktop and select **Programs, REALmagic Hollywood Plus, and DVD Station**.

3. DVD Station detects the audio CD in the drive and displays the audio CD Control window. Click the **Pause/play button** to begin playing your audio CD, or use the Play List feature to choose your own selections.

**Note:** If you do not hear any music after clicking the **Pause/play** button, check to see if you can hear music with headphones plugged into the headphone jack on the front of the DVD-ROM drive. If you can hear music from the headphones, check to make sure you have connected the DVD-ROM drive to the MPEG-2 card, the MPEG-2 card to your sound card, and your sound card to your speakers.

### **Using the DVD-ROM drive with CD-ROM or DVD-ROM discs**

You can use a data disc to read data files, play games, or run applications.

To read a data CD:

1. Turn on the computer.
2. Load a data disc into the loading tray.
3. Double click **My Computer**.
4. Verify that the **DVD** icon is displayed.
5. Double click the **DVD** icon.
6. Verify that you can view files on the disc.



## ***Installation and usage guide(translated)***

### ***Product description***

The IBM 6X DVD-ROM Internal IDE Option Kit can read both DVD-ROM discs and CD-ROM discs. It also reads many other CD and DVD formats, including DVD video, Video CD, and audio CD formats. It also reads multiple-session, extended architecture (XA) discs, such as the Kodak Photo CD. When used as a CD-ROM drive, this drive delivers data at up to 24 times the standard CD-ROM speed (24X).

The DVD-ROM drive is designed for installation in a personal computer that uses the integrated drive electronics (IDE) or the enhanced IDE (EIDE) architecture.

This section provides you with installation instructions for the DVD-ROM drive and the MPEG-2 card. It also provides instructions for using the DVD Station software.

In addition to this book, the option package includes:

- IBM 6X DVD-ROM Internal IDE Option Kit
- Four mounting screws (M3 x 5 mm, slotted)
- IDE cable for connecting two IDE devices
- Two faceplates for use with certain systems
- Two internal audio cables
- REALmagic Hollywood Plus MPEG-2 Playback Card
- Mini jack external audio cable
- S-Video to composite converter cable
- VGA pass-through cable
- REALmagic Hollywood Plus Driver Diskette*
- REALmagic Hollywood Plus Application Diskette*
- Video CD
- 6X DVD-ROM Internal IDE Drive Option Diskette*
- Laser Safety Guide*

**Note:** The REALmagic Driver Diskette, Application Diskette, and Video CD may be distributed on one CD or as separate items.

Contact your place of purchase if an item is missing or damaged. Be sure to retain your proof of purchase. It might be required to receive warranty service. See Appendix E, "Help and Service Information" on page 3-25 for technical support information.

## *Before you begin*

Before you install the drive, be sure that your computer meets the following system requirements.

- Intel Pentium 133 Mhz or better
- 16 MB RAM or more
- 3.5-inch diskette drive
- Available PCI slot on computer's main board
- Available drive bay
- Microsoft Windows 95 OSR2 or Windows 98 operating system
- Available IDE connection
- SoundBlaster compatible sound card
- Amplified stereo speakers

## **Handling instructions**

Before installing or otherwise handling the DVD-ROM drive, take note of the following guidelines.

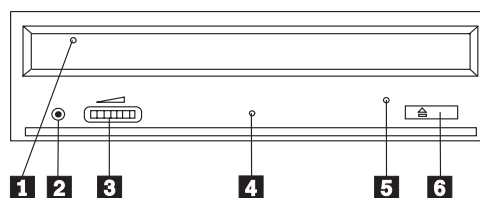
To protect your DVD-ROM drive during installation, observe the following precautions.

Keep the DVD-ROM drive and the MPEG-2 card in their anti-static bags until you are ready to install them. Limit your movement when installing; movement can cause static electricity buildup.

Handle the drive with care. Dropping or jarring the drive can damage the components inside the drive housing.

Do not force insertion of the power cable. Doing so might damage the connector or the drive.

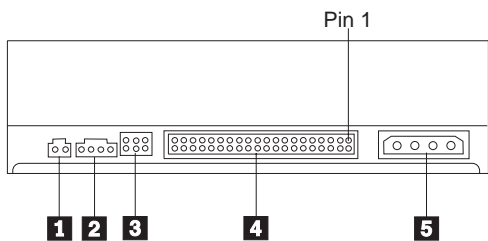
## **Front view of the drive**



- 1 Disc drawer
- 2 Headphone jack
- 3 Volume control
- 4 Busy indicator light

- 5 Emergency eject hole
- 6 Open/close button

### Rear view of the drive



- 1 Reserved
- 2 Audio output connector
- 3 Configuration jumpers
- 4 IDE interface connector
- 5 Power connector

Read the following information before you start your installation. The installer of the drive will have to complete the following steps:

Determine which IDE port to use, and the corresponding configuration setting

Set the configuration jumper on the drive (and possibly make changes to the configuration settings of other devices)

Physically install the drive in a drive bay

Configure the system

Install a device driver

If you do not understand these procedures, or are unsure about your ability to perform all the procedures described, have a qualified computer technician install the DVD-ROM drive for you.

## Installing the drive

### Step 1. Opening the computer

1. Turn off the computer and all attached peripherals.
2. Unplug the power cords for the computer and all attached devices.
3. Remove the cover from the computer.

### Step 2. Unpacking the drive

1. Take the bag the drive is packed in and touch it to an unpainted metal surface for at least two seconds. This will drain the static electricity from the package and your body.
2. Remove the drive from the bag.

If you must put the drive down, place the antistatic bag on a flat padded surface, such as a magazine, and place the drive on the bag with the component side facing up.

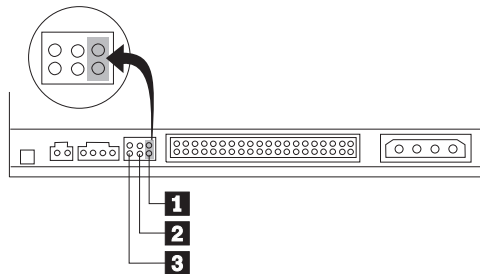
### Step 3. Selecting an IDE port

Newer computers typically have two IDE ports, each of which can support two devices. Typically the primary IDE port connects to your hard disk drive, and the other IDE port is the secondary port. The IDE port you select and the cable position you select will determine which configuration jumper setting you will use for the drive. See “Step 4. Setting the configuration jumper” on page 1-28 for instructions on setting the configuration jumper.

If your primary IDE port has a device connected as a master device, and your secondary port does not have a master device connected, you will install the DVD-ROM drive as the secondary master device.

If you already have a master device attached to your secondary IDE port, you must reconfigure the secondary master device for a slave position on either the primary or secondary ports. To do this, consult the documentation for the device you are reconfiguring.

### Step 4. Setting the configuration jumper



The illustration above shows the master 1 setting and the slave 2 setting. The other jumper setting is the cable-select 3 setting, which is not used on IBM computers. Configure the DVD-ROM drive by placing a jumper in the master setting.

### Step 5. Mounting the drive in the bay

**Attention:** Be sure to use the M3 x 5 mm mounting screws in the option package when you are driving screws directly into the drive. Using screws that are too long might damage the drive.

You can mount the DVD-ROM drive either horizontally or vertically in the computer. If you mount the drive vertically, you must secure any discs you place into the drive before the drive tray is closed, or the DVD-ROM drive will not be able to read the disc properly. For

further instructions on securing discs in a vertically mounted drive, go to page “Securing a disc in a vertically mounted drive” on page 2-2.

1. Slide the drive into the bay. Your computer may have specific required procedures for installing storage devices. Refer to the documentation that came with your computer for further instructions.
2. Align the drive-bay screw holes with the threaded holes in the drive housing or mounting bracket. Be sure to use the M3 x 5 mm mounting screws provided with this drive. Using the wrong size screws might damage the drive.
3. Thread the screws in loosely to check their position. Usually two screws are used on each side. Check to make sure the alignment is correct, then tighten the screws to secure the drive. *Do not overtighten.*

### Step 6. Installing the MPEG-2 card

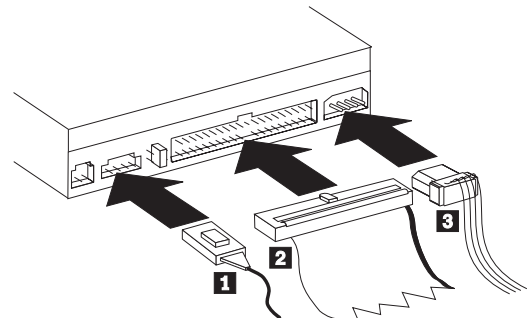
Included in your option package is the REALmagic Hollywood Plus MPEG-2 Playback Card. Follow these instructions to install the MPEG-2 card.

1. Locate an available PCI expansion slot on your computer’s main board. When you find an available slot, remove the slot cover screw and slot cover.
2. Before opening the anti-static bag containing the MPEG-2 card, touch the bag to a metal expansion slot cover on the back of your computer. This will drain the static electricity from the package and your body.

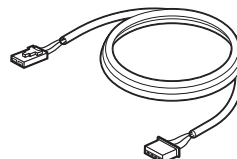
3. Open the bag and take out the MPEG-2 card. Insert it into the available expansion slot. Press down gently on the top edges of the board to make sure that all connecting points are fully seated.
4. Use the slot cover screw to anchor the card bracket into the expansion slot.

### Step 7. Attaching the cables to the drive

Connect the cables to the DVD-ROM drive as follows:



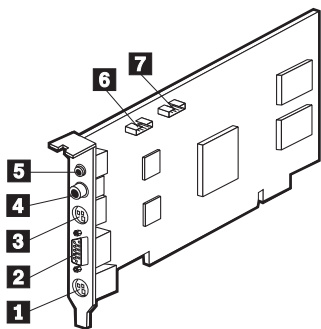
1. Connect the larger end of the included internal audio cable 1 to the audio output connector on the DVD-ROM drive. Here is an illustration of the internal audio cable.



2. Attach a 40-pin IDE-cable connector 2 to the IDE connector on the drive. Align the cable so that the color-coded edge is closest to the power cable connector 3. Use the IDE cable provided with this option if there is no cable attached to the IDE port.
3. Attach a four-pin power-cable 3 to the power connector on the DVD-ROM drive.

### Step 8. Attaching the cables to the MPEG-2 card

Follow these instructions to connect the MPEG-2 card to the DVD-ROM drive, your sound system or sound card, your video card, and your monitor. Refer to the following illustration if you have trouble locating any of the connections.



- 1 9-pin VGA input port
- 2 VGA output port
- 3 S-Video output jack
- 4 Digital audio output jack
- 5 Stereo output jack
- 6 Line Out port
- 7 CD In port

1. In "Step 7: Attaching the cables to the DVD-ROM drive", you connected an internal audio cable to the drive. Connect the other end of that internal audio cable to the CD In port 7 on the side of the MPEG-2 card.

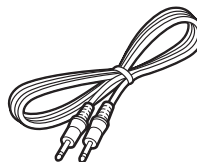
2. You have two options for connecting the MPEG-2 card to an audio output source.

Connect the MPEG-2 card to the CD Audio In port on your sound card. To do so:

- a. Locate the other internal audio cable included in the option package. Connect one end of that cable to the Line Out port 6 on the side of the MPEG-2 card.
- b. Connect the other end of the second internal audio cable to the CD Audio In port on your sound card.
- c. Connect your sound system to the Line Out jack on your sound card.

Connect the MPEG-2 card to your sound card externally. To do so:

- a. Connect the external audio cable to the stereo output jack 5 on the MPEG-2 card. Here is an illustration of the external audio cable:

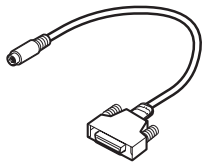


- b. Plug the other end of the external audio cable into the Line In jack on your sound card.

- c. Plug your sound system into the Line Out jack on your sound card.

**Note:** Use only one of the above methods to connect to an audio output source. If the included internal audio cable does not fit your sound card, use the external audio cable connection described above.

3. Disconnect your monitor cable from your existing video card or from the monitor connection on your main board.
4. Locate the VGA pass through cable included with this option. Here is an illustration of the cable.



Attach the 9-pin connector on the cable to the the corresponding 9-pin VGA input port 1 on the MPEG-2 card. Attach the VGA connector on the cable to your video card or the monitor connection on your main board.

5. Attach your monitor cable to the VGA output port 2 on the MPEG-2 card.

## Step 9. Completing the hardware installation

1. Be sure that the DVD-ROM drive and the MPEG-2 card are securely mounted and the connectors are firmly attached.
2. Be sure the cables do not interfere with the computer cover and do not block the power-supply fan blades or air-flow paths.
3. Reinstall the computer cover.
4. Reconnect all external devices.
5. Plug all power cords into electrical outlets.

## Step 10. Attaching the faceplates

This option package includes two faceplates which conform to the curved design of certain systems. If your computer system has a curved design, you can attach one of the included faceplates so that the front of the drive matches the exterior cabinet. Choose the faceplate that best fits your system, and attach it after you have mounted the DVD-ROM drive in the appropriate bay.

## Step 11. Updating your computer configuration

After you have completed the hardware installation, restart your computer. When you turn on your computer the configuration-setup information screen will be displayed on your screen. If you don't see this screen, check your computer documentation for information about accessing the configuration or setup utility program.

To see the configuration information for most IBM computers, press **F1** during startup when the graphic displays in the upper right corner of the screen. When you have finished reviewing the information, save the changes and exit.

## Step 12. Installing the device drivers

This section contains the instructions for installing device drivers for the DVD-ROM drive and MPEG-2 card.

**Note:** Be sure to read the README.TXT file for additional information about the device drivers.

## Installing the device driver for the MPEG-2 card

Follow these instructions to install the device driver for the REALmagic Hollywood Plus MPEG-2 Playback Card.

1. If you have not already done so, turn on your computer and start your operating system.

2. After the Windows logo screen, the **New Hardware Found** dialog box will appear to inform you that the operating system has detected a **PCI Multimedia Video Device**. In the next window, select **PCI Multimedia Video Device** and click **Next**.
3. Insert the disk labeled *REALmagic Hollywood Plus Driver Disk* into your diskette<sup>3</sup> drive; then click **Finish**.
4. Check the box next to **Select the best driver for your device** and then click **Next**.
5. Make sure that the correct drive is checked; then click **Next**.
6. Click **Next** again.
7. When the computer has finished copying the driver files, click **Finish**.
8. When installation is completed, remove the *Driver Disk* and restart your operating system.

---

<sup>3</sup> If the REALmagic software and drivers are delivered on a CD-ROM, insert the REALmagic CD into the DVD-ROM drive.



## Installing the device driver for the DVD-ROM drive

In most instances, Microsoft Windows 95 OSR2 and Windows 98 will automatically detect the DVD-ROM drive and will already have the necessary device drivers. However, the standard Windows 95 and Windows 98 drivers will not allow you to access the DVD-ROM drive through a DOS session.

If you are using the DVD-ROM drive with DOS, Windows 3.x, OS/2 or Windows NT, or if you want to access the DVD-ROM drive through a DOS session in Windows 95 or Windows 98, you will need to install the DOS device driver from the *IBM 6X DVD-ROM Internal IDE Option Kit Option Diskette*. This device driver will allow you to access the DVD-ROM drive in DOS, or to access the DVD-ROM drive through an open DOS session in Windows 3.x, OS/2, Windows 95, Windows 98, or Windows NT.

**Note:** In DOS mode, the DVD-ROM drive will only function as a CD-ROM drive. You will only be able to access data discs in this mode.

Follow these instructions to install the device driver.

1. Insert the *IBM 6X DVD-ROM Internal IDE Option Kit Option Diskette* into the diskette drive.
2. Type `A:CDSETUP` in a command line and press Enter.
3. Click **Setup**.

4. Follow the on-screen instructions to install the software.
5. Click **Exit** after software installation completes.
6. Restart your computer so the new settings take effect.

Some IBM Windows NT pre-loads contain a **piixide** device driver. This device driver provides DMA support and replaces the Windows NT native **atapi** device driver. The drive will **not** work if both the **atapi** and **piixide** device drivers are enabled at the same time. To see if both device drivers are enabled at the same time, follow these instructions.

1. Click the **Start** button and select **Settings** and then **Control Panel**.
2. Double click **Startup**; if both drivers are enabled, then change either the **piixide** or the **atapi** driver to **Disabled**.

## Step 13. Installing DVD Station

Follow these instructions to install the DVD Station playback software.

1. Insert the disk labeled *REALmagic Hollywood Plus Application Disk* into your diskette<sup>4</sup> drive.
2. Click the **Start** button and select **Run**
3. Type `X:\setup` in the command box, where *X* is the letter assigned to your diskette drive.

---

<sup>4</sup> If the *REALmagic* software and drivers are delivered on a CD-ROM, insert the *REALmagic* CD into the DVD-ROM drive.

4. Click **Next**.
5. The setup program will prompt you to choose from two options:
  - Install the REALmagic applications
  - Change the DVD Region Code
 If you are installing the REALmagic Hollywood Plus MPEG-2 Playback Card for the first time, check the install option and click **OK**.
6. Click **Next** to accept the default directory, or click **Browse** to choose a different location.
7. After installing the application files, the setup program will prompt you to choose a DVD Region Code. Choose the code which corresponds to your country.
8. Click **OK**. The setup program will display a message indicating the successful completion of the region code setup.
 

**Note:** You are allowed to change the region code a maximum of five times. Also, the setup program will not ask you to set the Region Code if you are reinstalling the card in the same region code at a later time. If you need to change the region code because you have relocated to another region, see “Changing the DVD region code” on page 1-37.
9. At the end of the installation process, you will see the following message displayed:

Setup has finished installing the REALmagic software. In order to have the board ready for operation, it is required to execute a 'Calibration' routine which will blank your screen for a few seconds.

You can also execute this operation at a later time by selecting the 'Auto Calibration' option from the 'REALmagic Configuration' icon.

Proceed with calibration?

Click **Yes** to proceed.

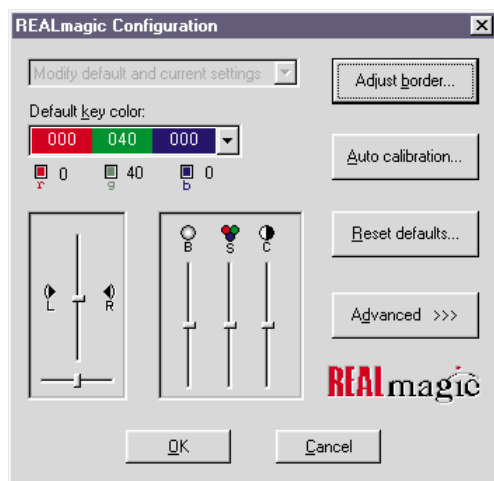
10. Click **Finish** to complete installation of the REALmagic DVD Station software.

#### **Step 14. Border adjustment and color calibration**

The REALmagic Hollywood Plus MPEG-2 Playback Card uses overlay technology to display MPEG video on top of the normal VGA graphics on your computer. Because this overlay varies depending on the video display mode used, you must adjust the position and size of the MPEG video window for each display mode you use.

Follow the steps below to complete the Border Adjustment and Color Calibration processes.

1. Start the configuration program by clicking the **Start** button and selecting **Programs, REALmagic Hollywood Plus, and REALmagic Configuration**. Here is an illustration of the REALmagic Configuration dialog box.



In the dialog box, click **Auto calibration...**. The display will flicker for approximately thirty seconds. If the auto calibration does not adjust the border correctly, go on to the next step.

2. From the configuration dialog box, click the **Adjust border** button. The Border Adjust dialog box will appear on your screen. Use the arrow buttons in the dialog box, or the arrow keys on your keyboard, to align the black window within the pink window. Press the plus (+) key on your keyboard to widen the black window. Press the minus (-) key on your keyboard to make the black window more narrow. The black window must cover the pink window exactly. When the two windows are aligned, click **OK**.

3. If the auto color calibration fails, restart your computer and try the auto calibration function again. If it fails again, you will need to perform a manual color calibration. To calibrate the color manually:
  - a. Click the **Start** button and select **Programs, REALmagic Hollywood Plus, and REALmagic Configuration...**
  - b. The REALmagic Configuration dialog box will appear on your screen. Click the **Advanced >>>** button.
  - c. At the next screen, click the **Manual calibration** button.
  - d. The Dialog window will appear on your screen. Use your mouse to move the slider bar (marked R) up or down until the image in the big box at the right looks like the image labeled "GOOD", which is on the left side of the Dialog window. Use the arrow keys on your keyboard to make fine adjustments.
  - e. When you have made the big box look as much like the GOOD image as you can, click the **Next** button.
  - f. Perform the procedure above eleven more times, for green and for blue, and so on.
  - g. When you have adjusted all twelve colors, click **Finish**.

If you want to reset the color calibration and border adjustment to the factory settings, you can click the **Default** button in the Border adjustment dialog box.

**Note:** The performance of DVD Station is dependent on the amount of video RAM that your computer contains. Depending on your video card, DVD Station may not support 16 or 32 bit color at all.

### **Step 15. Connecting the MPEG-2 card to your TV and stereo**

Once the MPEG-2 card and the DVD-ROM drive are installed in your computer, you can play audio or video CDs, and DVD video discs on your computer, using your computer monitor and computer speakers. If you want to see a video CD or DVD video on your TV, or hear audio CDs played through your stereo speakers, you need to connect the MPEG-2 card to those devices.

#### **Connecting the MPEG-2 card to your TV**

You have two options for connecting your TV to the MPEG-2 card. You can use a standard S-Video cable if your TV supports S-Video, or you can use the included S-Video to composite converter cable if your TV does not support S-Video.

If you are using S-Video, plug your S-Video cable into the S-Video output jack on the REALmagic Hollywood Plus MPEG-2 Playback Card ( 3 in the illustration on page 1-30). Plug the other end of the S-Video cable into the S-Video input jack on your TV.

If you do not have a TV which supports S-Video, you need to use the included S-Video to composite converter cable. Plug the S-Video end of this converter into the S-Video output jack on the MPEG-2 card,

and attach the other end of the converter to a standard extension cable and plug it into the cable input on your TV.

**Note:** Do not connect the DVD-ROM drive to your TV through a recording device such as a VCR. Doing so will cause a scrambled picture. You will not be able to record DVD movies through a VCR.

#### **Macrovision copyright notice**

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing purposes only, unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

## Connecting the MPEG-2 card to your stereo

There are two audio output jacks on the REALmagic Hollywood Plus MPEG-2 Playback Card. One is an analog output which will work with most stereo sound systems, including Pro Logic Surround Sound encoded systems. The other audio output jack is a digital output and is for use with Dolby Digital Surround Sound (DDS or AC-3) devices.

To connect your MPEG-2 card to your stereo sound system, make sure that the MPEG-2 card is connected to your sound card as detailed in "Step 8. Attaching the cables to the MPEG-2 card" on page 1-30. Then connect your stereo sound system to the LINE-OUT or SPEAKER port on your sound card. This will allow you to listen to both DVD/MPEG-2 audio and other types of audio through your stereo sound system.

If you have a stereo receiver or other sound device which supports DDS or AC-3 technology, you can connect that device to the MPEG-2 card directly by using the S/PDIF (digital) output jack on the REALmagic Hollywood Plus MPEG-2 Playback Card.

## Changing the DVD region code

The setup program for the DVD Station software will accept changes to the DVD region code up to five times. This feature allows you to change the region code if you relocate to a different region. You will not be able to change the code after the fifth time. Follow the instructions below to set and change the DVD region code.

1. From the taskbar, click the **Start** button and select **Run**.
2. Insert the *REALmagic Hollywood Plus Application Disk* into your diskette drive.
3. In the command box, type in `a:\setup` and click **OK**.
4. You will be prompted to choose one of the following options:
  - Install the REALmagic applications
  - Change the DVD region codeCheck **Change the DVD region code** and click **OK**.
5. Select the appropriate region code for the country you are in. Follow the instructions on your screen to complete the region code setup.

**Note:** Regionalization and Copy Protection (the DVD region code) uses the Content Scramble System (CSS) standard to prevent unauthorized duplication of the intellectual property rights distributed on DVD discs. It was originally requested by the Motion Picture Association of America (MPAA) to address video piracy, but is applicable to any content. CSS works by inhibiting the transmission

of unencrypted data from the PCI bus. Playback systems must license CSS in order to decode the encrypted data.

The CSS specification divides the world into six unique regions. Content designated for one region cannot be read by playback systems in another region. While CSS is used to prevent digital copies of the DVD content, another technology devised by Macrovision is used to prevent analog copies of the DVD content. The Macrovision standard is a scrambling system that has been widely used by the movie industry to prevent unauthorized duplication of video content using commercial VCRs. DVD playback systems must support both CSS and Macrovision copy protection standards.

## *Using the DVD Station software*

This section will describe how to use the DVD Station software which is included in your option package. It describes how to use the software to play movies in both DVD and Video CD formats, how to use data CDs containing MPEG files, and how to play audio CDs.

### **Starting DVD Station**

DVD Station will automatically detect the format of the disc loaded in the DVD-ROM drive, and the controls available for use in DVD Station change accordingly. Follow these instructions to start the DVD Station software.

1. Turn on your computer and start your operating system, if you have not already done so.
2. Insert a DVD disc, a Video CD, or a CD-ROM containing MPEG files into the DVD-ROM drive.
3. Click the Windows **Start** button; then select **Programs**, **REALmagic Hollywood Plus**, and **DVD Station**. The REALmagic DVD Station Control window will appear on your screen.
4. If the Auto-Play feature in DVD Station is enabled, DVD Station will begin playing the disc in the DVD-ROM drive as soon as it is inserted.

## DVD Station Control window

This section will describe the various controls available in the Control Window and what features are accessed by those controls. As you read this section, refer to the following illustration to help you locate the controls.



### Display panel

In the center of the DVD Station Control window is a display panel. This panel displays information about the current video or audio track. On the far left side of the display is the disc format type. To the right of the format type is the track number currently playing. To the right of the track number is the play time of the current track. To the right of the play time is the aspect ratio. Finally, on the far right of the display panel is the Repeat Mode indicator. At the bottom of the display panel is a Progress Bar, which shows how much of the track or video clip has been played. You can click on different parts of the Progress Bar to jump to specific parts of the current track.

### Volume control

The volume control is immediately to the left of the display panel, and is next to the custom buttons area. With this volume control slider you can control the audio level of the disc you are playing. Click on the slider and move it up or down using your mouse. At the top of the volume control slider is the **Mute Sound** button. Click this to mute the audio; click it again to resume the previous audio level.

## Standard buttons

Below the display panel is a row of buttons. These buttons are similar to the controls on a VCR. Here is a list of the buttons and their functions, going from left to right across the row. Refer to the illustration below to locate the buttons.



### Pause/play

Click this button to pause play, to begin playing the first track of a disc, or to resume play after pausing.

### Stop

Click this button to stop playing a disc.

### Eject

Click this button to eject the disc from the DVD-ROM drive.

### Rewind

Click this button to rewind. Click once to rewind at normal rewind speed (twice playback speed); click twice for rapid rewind (eight times playback speed).

### Fast forward

Click this button to fast forward. Click once to fast forward at normal fast forward speed (twice playback speed); click twice for rapid fast forward (eight times playback speed).

### Previous track

Click this button to skip to the previous track on the CD or DVD.

### Next track

Click this button to skip to the next track on the CD or DVD.

### Play mode or 10-key keypad

Click this button to select from three play modes: All, Random, and Play List. The display panel shows which play mode is currently active.

**All** is the default play mode. It plays all tracks on the disc in sequential order.

**Random** plays tracks in random order. This play mode does not work with DVD movies.

**Play List** plays tracks from a previously created play list. To create a play list, refer to the instructions on page 1-41.

When the disc in the drive has an interactive menu, the **10-key keypad** button displays instead of the Play Mode button. For information on the 10-key keypad button and its functions, see “10-key keypad” on page 1-46.

### Repeat mode

Click this button to toggle between **Play Once** and **Continuous Play** repeat modes. Click once to repeat the current chapter or track; click twice to repeat the entire title.



## Custom buttons

On the left side of the DVD Station Control window is the custom button area. There are four buttons in this area, plus an arrow button in the upper right corner of the custom button area which allows you to toggle to another set of controls (see “Picture controls” on page 1-44 for more information on the other set of controls).

### Display

The icon on this button looks like an VCR counter. Click this button to display the play time of the current clip, the audio language currently selected, and the name of the file. This information will be displayed in the upper left corner of your viewing window. Click the **Display** button again to turn off the display.

### TV Mode

The icon on this button looks like a TV. Click this button to switch the video from your computer monitor to your TV screen. The MPEG viewing window will close, and the video will play only on your TV. If you are viewing the video on your TV, click this button to return the video to your computer monitor.

### Open File

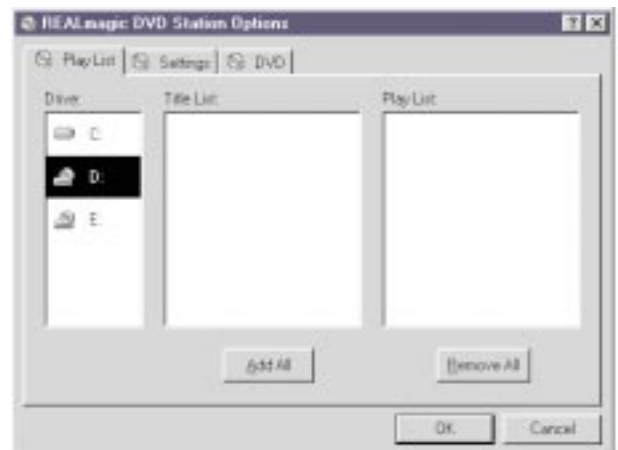
The icon on this button looks like an open file folder. Click this button to open and play MPEG files from your hard disk drive, your DVD-ROM drive, or your CD-ROM drive.

## Options Dialog

The icon on this button looks like a closed file folder. Click this button to open the DVD Station Options window. This window has three screen tabs across the top of the window.

Here is a list of the screen tabs in the Options dialog window, and the settings or functions available on each screen tab.

The **Play List** screen allows you to create a play list of MPEG files for use with the DVD Station Play List play mode. Here is an illustration of the Options window with this screen selected.



The Title List box shows which MPEG files are available on the drive you have selected. The Play List box shows which files are currently on the play list. To create a Play List:

1. From the Title List box, select which file you want to add to your play list. Using your mouse, drag that file over to the Play List box. To add all of the files listed in the Title List box, click the **Add All** button.
2. To remove one file from the Play List, click on that file and drag it to the Title List box. To clear the Play List, click the **Remove All** button. To change the playing order of the files in your play list, you can drag the files and reposition them.
3. Click **OK** when you have finished adding, removing, or changing the order of the files in your play list.
4. To access your play list, click the **Play Mode** button on the DVD Station Control window button bar until the word Play List is highlighted in the display panel.

The **Settings** screen is where you can enable or disable various DVD Station settings. Here is an illustration of the Options window with the Settings screen selected.



– **General box**

**Start detached**

Check this box to display the DVD Station Control window detached from the movie viewing window when the software is started.

**ToolTips**

Check this box to enable a special feature called ToolTips, which displays a pop-up box showing the function of each button in DVD Station.

**Keep aspect ratio**

Check this box to enable DVD Station to maintain the correct aspect ratio when the

viewing window is resized. This prevents distortion of the picture.

#### Always on top

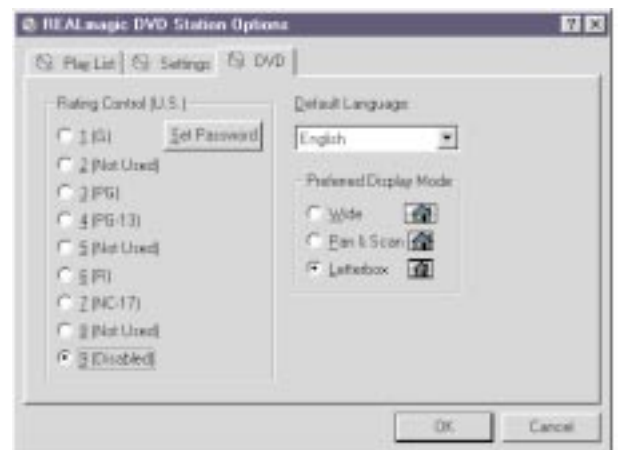
Check this box to cause the viewing window to display on top of all other windows. This prevents other application windows from appearing on top of the movie.

#### AutoPlay

Check this box to enable or disable the Windows Auto-Play feature on the DVD-ROM drive.

- In the **Audio Output** box you can select which type of audio output you are using. There are check boxes for analog stereo, digital PCM (Pro Logic), and digital AC-3 (Dolby Digital Surround Sound) sound.
- In the **TV** box you can select which video format your TV supports, if you choose to view MPEG video over your TV. There are check boxes for NTSC (U.S.) and PAL (Europe and other countries) formats.

The **DVD** screen displays special DVD settings. Here is an illustration of the Options window with the DVD screen selected.



#### Rating control

This is a list of rating levels which are recorded on some DVD movie discs. By checking one of these rating levels, you can limit play to only those discs which have a rating equal to or lower than the rating level you selected. There is also a button for setting a password. Once you have set the password, the rating levels can not be changed unless the password is entered correctly.

#### Default language

Most DVD movies support multi-lingual audio soundtracks. You may select the default language in this pull-down box. If the default language you

choose is not available on the DVD disc you are playing, DVD Station will use the default language on that particular disc.

#### **Preferred display mode**

Here you can select which type of aspect ratio you want to use to view your movie.

### **Picture controls**

In the upper right corner of the Custom Buttons area is a small arrow button. It is above and to the right of the Volume Control slider. Click this arrow button to display more customizable features. Here is a list of the additional controls and the features accessed by each.

#### **Picture control sliders**

From left to right, these sliders control the brightness, contrast, and color saturation of the movie viewing window. These controls do not affect other graphics on your computer monitor. Use your mouse to move the sliders up or down. Your audio may be muted while you are using the sliders.

#### **Image capture button**

Click this button to save a bitmap (BMP file) image of a movie frame. Note that due to copyright restrictions, this feature does not work with DVD video titles.

#### **Segment play (A-B)**

This feature allows you to repeat play of a specified segment of a movie. Click this button once to indicate the starting point of the segment. Click the button again

to indicate the ending point of the segment. The segment will play repeatedly until you click another button (such as Stop or Rewind).

#### **Slow motion play**

Click this button once to slow playback to half of normal speed. Click twice to slow playback to one-eighth of normal speed. Click the button a third time to resume normal playing speed. Audio is muted during slow motion play.

### **DVD navigation buttons**

On the far right side of the DVD Station Control window there are five navigation buttons and a joystick controller. Here is a list of the navigation buttons and the features accessed by each.

#### **Audio soundtrack language selector**

This feature only works with DVD discs that have been recorded with multiple language soundtracks. Click this button during play to select or change the audio soundtrack language. When this button is clicked, a pop-up menu appears showing the available languages on the disc. Click on the language you want to select.

#### **Camera angle selector**

This feature only works with DVD discs that have been recorded with multiple camera angles. Click this button during play to select or change the camera angle. When this button is clicked, a pop-up menu appears showing a list of numbers corresponding to the camera angles available. Click on the camera angle you want to select.

**Subtitle selector**

This feature only works with DVD discs that have been recorded with multiple language subtitles or closed captions. Click this button during play to select or change the subtitle language. When this button is clicked, a pop-up menu appears showing the available subtitle languages on the disc. Click on the language you want to select.

**Menu selector**

Some DVD discs have an onscreen menu function which allows you to access soundtrack language settings, camera angle settings, and subtitle options. Click on this button to access the onscreen menu, if it is available on the current disc.

**Title selector**

Some DVD discs contain multiple titles and contain a title menu. Click this button to activate the title menu. Use the joystick controller buttons to select a title from the menu.

**Joystick controller**

This group of buttons is used to navigate possible choices offered in DVD menus. Click on the UP, DOWN, LEFT, or RIGHT arrows to highlight the option you want to select. Click on the **Select** button in the center of the joystick controller to select the option.

**Playing a DVD disc**

Follow these instructions to play a DVD video or movie disc.

1. Turn on your computer if you have not already done so; press the **Open/close** button on the DVD-ROM drive to open the loading tray.
2. Insert a DVD disc into the tray and press the **Open/close** button again to close the tray.
3. Click the **Start** button and select **Programs, REALmagic Hollywood Plus, and DVD Station**. The DVD Station Control window and a viewing window will appear on your screen.
4. If the Auto-Play feature of DVD Station is enabled, the video or movie will begin to play. If it is disabled, click the **Pause/play** button on the DVD Station Control window.

## 10-key keypad

If DVD Station detects a DVD movie disc is in the DVD-ROM drive, it will display a **10-key keypad** button under the display panel instead of the Play Mode button. Clicking the 10-key keypad button will open a floating 10-key keypad which you can use to interact with some DVD movie discs that have menu selections and other options.

Here is an illustration of the title and chapter 10-key keypad.



Here is an illustration of the menu 10-key keypad.



On the keypad are number buttons and several buttons with arrows on them.

Click the **number** buttons to select an option from the onscreen menu.

Click the **left-to-right arrow** button to toggle from the title and chapter keypad to the menu keypad.

Click the **left-facing arrow** button if you need to make a correction.

Click the **up arrow** to return to the previous menu.

Click the **down arrow** to execute the option you have selected.

If the 10-key keypad is hidden by another window, click the **keypad** button on the Control window to bring the keypad to the foreground.

## Playing a Video CD

Follow these instructions to play a Video CD disc.

1. Open the DVD-ROM drive by pressing the **Open/close** button on the drive.
2. Insert a Video CD 2.0 disc into the tray and press the **Open/close** button to close it.
3. Click the **Start** button and select **Programs, REALmagic Hollywood Plus, and DVD Station**.
4. DVD Station will detect the Video CD in the DVD-ROM drive and will show the Video CD Control window. Click the **Pause/play** button on the Control window to begin playing the Video CD disc.

## Buttons on the menu keypad

The Video CD Control window has a menu keypad to the right of the display panel, instead of the DVD Control window's navigation buttons and joystick controller. Video CD 2.0 discs feature embedded playback controls. You may play a disc that prompts you with questions, and gives numbered options for responses. Use the **number** buttons on the menu keypad to make your selection. Use the **down arrow** button to execute your selection.

## Playing a Video CD 2.0 disc

When you press the **Pause/play** button to begin playing your Video CD disc, on most discs you will see a menu of songs on your viewing screen. The screen will show only the first half of the songs available on the Video CD. To select a song from the second part of the list, click the **Next track** button on the Control window. Once you have decided which song you want to play, enter the song number using the menu keypad and click the **Menu select** button on the Control window. The **Menu select** button is immediately to the right of the menu keypad display screen.

**Note:** Some Video CDs have different formats and do not require you to click the **Menu select** button. Some formats will work by clicking the **Pause/play** button after using the **Next track** button to select a song.

## Playing an audio CD

To play an audio CD, you can either use DVD Station or your Windows audio Playback utility. To use DVD Station to play an audio CD, follow the procedures below. For more information on using your audio playback software, see the documentation that comes with your operating system or your computer.

1. Press the **Open/close** button on the DVD-ROM drive to open the loading tray, and load an audio CD into the tray.
2. Click the **Start** button on the Windows desktop and select **Programs, REALmagic Hollywood Plus, and DVD Station**.

3. DVD Station detects the audio CD in the drive and displays the audio CD Control window. Click the **Pause/play button** to begin playing your audio CD, or use the Play List feature to choose your own selections.

**Note:** If you do not hear any music after clicking the **Pause/play** button, check to see if you can hear music with headphones plugged into the headphone jack on the front of the DVD-ROM drive. If you can hear music from the headphones, check to make sure you have connected the DVD-ROM drive to the MPEG-2 card, the MPEG-2 card to your sound card, and your sound card to your speakers.

### **Using the DVD-ROM drive with CD-ROM or DVD-ROM discs**

You can use a data disc to read data files, play games, or run applications.

To read a data CD:

1. Turn on the computer.
2. Load a data disc into the loading tray.
3. Double click **My Computer**.
4. Verify that the **DVD** icon is displayed.
5. Double click the **DVD** icon.
6. Verify that you can view files on the disc.

### **Product Registration**

Thank you for purchasing OPTIONS by IBM. Please take a few moments to register your product and provide us with information that will help IBM to better serve you in the future. Your feedback is valuable to us in developing products and services that are important to you, as well as in developing better ways to communicate with you. Register your option on the IBM Web site at:

<http://www.pc.ibm.com/register>

IBM will send you information and updates on your registered product unless you indicate on the Web site questionnaire that you do not want to receive further information.

### **Product Service and Warranty Information**

For technical support, support hours, and warranty terms and conditions, see the enclosed inserts, or contact your IBM reseller or IBM marketing representative.



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## Care and maintenance information

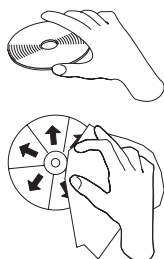
This section includes information about how to care for your DVD-ROM drive, as well as how to care for the CD and DVD discs you will be using with the drive.

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### Caring for a CD or DVD disc

Digital discs are high-density media that must be handled with care and kept clean to insure that they remain readable. These precautions will help to prolong the life of your discs.

**Attention:** Wiping a disc using a circular motion can cause loss of data.



---

## Part 2: Care and maintenance guide

Handle the disc by the edges or the center hole. Do not touch the surface of the disc.

To remove dust or fingerprints, wipe the disc from the center to the edge with a soft, lint-free cloth.

Do not write on the surface.

Do not place the disc in direct sunlight.

Do not use commercial cleaners to clean the disc.

Do not bend the disc.

---

### Caring for the DVD-ROM drive

To protect your DVD-ROM drive during operation, observe the following precautions.

Do not move the drive when it is in use. Doing so might cause data error or damage the drive.

Avoid exposing the drive to the following conditions.

- high humidity
- high temperature
- excessive dust
- mechanical vibration
- sudden shock or dropping
- placement on an inclined surface

- direct sunlight
- sudden changes in temperature

Do not insert foreign objects into the drive.

Do not stack objects on the drive.

Do not remove the drive cover or attempt to service the drive.

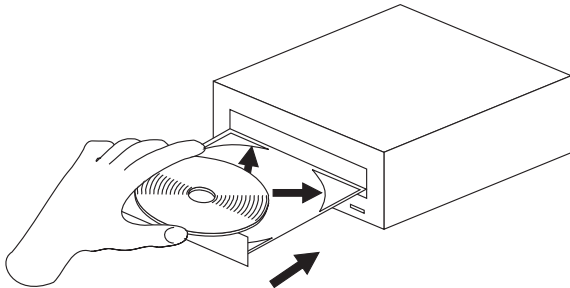
Remove any discs from the disc drawer and make sure the drawer is closed before moving the drive unit.

Keep the original packing materials. When you need to ship the drive unit to a different location, use the original packing materials to ensure the drive is transported safely.

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## Loading a disc into the DVD-ROM drive

To load a CD or DVD disc into a drive in a horizontal bay :



1. Press the **Open/close** button on the front of the drive. The tray slides out of the drive.
2. Place the disc in the tray with the label facing up.

3. Close the tray by pressing the **Open/close** button, or by gently pushing the loading tray in.

**Attention:** Do not force the tray to open; do not insert foreign objects into the loading tray.

## Securing a disc in a vertically mounted drive

If you have mounted your DVD-ROM drive in a vertical bay, you will need to use the clips on the sides of the tray to secure your disc.

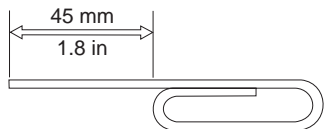
The DVD-ROM drive loading tray has four plastic clips which rotate over the edges of the disc and hold it in place when the drive is mounted vertically.

1. Push the **Open/close** button to open the loading tray.
2. Place your disc into the loading tray.
3. Using your fingernail or something similar, gently rotate the clips toward the center of the tray until they cover the edges of the disc.
4. Close the tray, either by pushing the **Open/close** button again, or by gently pushing on the tray.

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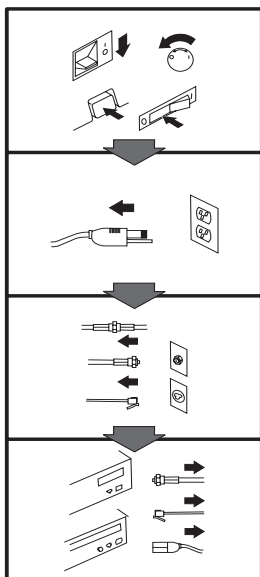
### Manually ejecting a disc

If you press the Open/close button and the tray does not slide out, turn off the computer and straighten a large paper clip to form a tool, as shown in the illustration. The straightened end must extend at least 45 mm (1.8 in.). Insert the extended end into the manual-eject hole on the front of the drive (see “Front view of the drive” on page 1-2). Push the paper clip until the tray opens. Gently pull out the tray until you can remove the disc.





### Appendix A. Safety information



#### **To Disconnect:**

##### **⚠ Danger:**

Electrical current from power, telephone, and communication cables is hazardous. To avoid shock hazard, disconnect cables as shown before opening the computer covers to install this product. The power cord must be used with a properly grounded outlet.

- Turn Everything OFF.
- First, remove power cord from outlet. (In the U.K., by law, the power cord must be disconnected after the telephone line cable.)
- Remove signal cables from receptacles.
- Remove all cables from devices.

#### **Vor dem Entfernen der Anschlüsse:**

##### **⚠ Vorsicht:**

Befolgen Sie die folgenden Schritte, um gesundheitliche Schäden durch stromführende Telefon- und Verbindungskabel auszuschließen. Um eine Berührungsspannung zu vermeiden, Kabel vor dem Öffnen der Computerabdeckungen bei der Installation dieses Produktes, wie abgebildet, herausziehen. Das Netzkabel darf nur an eine ordnungsgemäß geerdete Steckdose angeschlossen werden.

- Schalten Sie alle Geräte AUS.
- Ziehen Sie zuerst das Netzkabel aus der Steckdose.
- Entfernen Sie die Signalkabel von den Anschlußbuchsen.
- Entfernen Sie alle Kabel von den Geräten.

#### **Précautions de déconnexion**

##### **⚠ Danger:**

Le courant électrique des câbles électriques, téléphoniques et de communication est dangereux. Pour éviter tout risque d'électrocution, déconnectez les câbles comme indiqué avant d'ouvrir les capots de l'ordinateur pour installer ce produit. Il convient d'utiliser le câble d'alimentation avec une prise correctement raccordée à la terre.

- Eteignez tous les appareils.
- Débranchez tout d'abord le câble d'alimentation de la prise de courant. (Au Royaume-Uni, la législation exige que le câble d'alimentation soit débranché après le câble téléphonique.)
- Débranchez les câbles de signalisation des prises femelles.
- Débranchez l'ensemble des câbles des périphériques.

#### **Para desconectarse**

##### **⚠ Peligro:**

La corriente eléctrica procedente de cables de alimentación, teléfono y comunicaciones es peligrosa. Para evitar descargas eléctricas, desconecte los cables tal y como se muestra y abra las cubiertas del ordenador antes de instalar este producto. El cable de alimentación debe utilizarse con una toma debidamente conectada a tierra.

- Desconecte todo.
- En primer lugar, retire el cable de alimentación de la toma. (En el Reino Unido, la legislación determina que el cable de alimentación se desconecte después del cable de línea telefónica.)
- Retire los cables de señal de los receptáculos correspondientes.
- Retire todos los cables de los dispositivos.

取外し時：

**⚠ 危険：**

電源、電話及び通信ケーブルからの電流は危険なものです。電気ショックの危険を避けるために、この製品をインストールするためにコンピューターのカバーを取外す前に、次の順序でケーブルを取外してください。

- すべての電源を切ってください。
- 最初にコンセントから電源コードを取外してください。
- コネクターから通信ケーブルを取外してください。
- 装置から全てのケーブルを取外してください。

**Per scollegare:**

**⚠ Pericolo:**

La corrente elettrica che attraversa i cavi di alimentazione, i cavi telefonici e i cavi per le comunicazioni è pericolosa. Per evitare il rischio di scosse elettriche, prima di procedere all'apertura del coperchio dell'elaboratore per installare il dispositivo, scollegare i cavi nel modo qui indicato. Il cavo di alimentazione deve essere inserito in una presa elettrica collegata correttamente a terra.

- Spegnerne tutto (posizione OFF).
- Innanzitutto, scollegare il cavo di alimentazione dalla presa. (nel Regno Unito, per disposizione di legge, è obbligatorio scollegare il cavo di alimentazione dopo aver scollegato il cavo telefonico).
- Scollegare i cavi di segnale dai connettori.
- Scollegare tutti i cavi dai dispositivi.

**Para desligar**

**⚠ Perigo:**

A corrente elétrica da unidade de alimentação, do telefone e dos cabos de comunicação é perigosa. Para evitar o risco de choques elétricos, desligue os cabos de acordo com as instruções relativas à instalação antes de abrir as tampas do computador para instalar este produto. O cabo de alimentação deve ser usado numa tomada devidamente ligada à terra.

- Desligue tudo
- Primeiro remova o cabo de alimentação da tomada. (De acordo com as leis do Reino Unido, o cabo de alimentação deve ser desligado depois do cabo da linha telefônica.)
- Remova os cabos de sinal dos receptáculos.
- Remova todos os cabos dos dispositivos.

**Odpojení:**

**⚠ Výstraha:**

Elektrický proud ze sit'ových, telefonních a komunikačních kabelů je nebezpečný. Abyste při instalaci tohoto výrobku předešli úrazu elektrickým proudem, před otevřením krytů počítače odpojte kabely dle obrázku. Sit'ový kabel musí být použit s řádně uzemněnou zásuvkou.

- Vypněte všechna připojená zařízení.
- Nejdříve odpojte sit'ový kabel ze zásuvky. (Ve Spojeném království musí být podle zákona sit'ový kabel odpojen až po odpojení telefonní přípojky).
- Odpojte signálové kabely.
- Odpojte všechny kabely periferních zařízení.

**Læs følgende inden frakobling:**

**⚠ Fare:**

Elektrisk strøm fra strømførende kabler og telefon- og kommunikationskabler er farlig. For at undgå elektrisk stød skal du sørge for at koble kablerne fra som vist, før du åbner computerens dæksler for at installere dette produkt. Den strømførende ledning skal tilsluttes en javdet stikkontakt.

- SLUK for alt.
- Fjern først den strømførende ledning fra stikkantaten. (I Storbritannien skal den strømførende ledning frakobles efter telefonkablet iflg. lov).
- Fjern signalkabler fra kontakter.
- Fjern alle kabler fra enheder.

### Ontkoppelen

#### Gevaarlijk:

Elektrische stroom afkomstig uit netsnoeren, telefoonkabels en communicatiekabels kan gevaarlijk zijn. Als u dit produkt wilt installeren, moet u, ter voorkoming van elektrische schokken, voordat u de computer openmaakt de kabels, zoals afgebeeld, ontkoppelen. Sluit het netsnoer altijd aan op een geaard stopcontact.

- Zet alles UIT.
- Haal eerst de stekker uit het stopcontact. (In het Verenigd Koninkrijk bent u wettelijk verplicht eerst de telefoonkabel en pas dan het netsnoer los te maken.)
- Haal de signaalkabels uit de ingangen.
- Verwijder alle kabels van de apparaten.

### Pour déconnecter

#### Danger:

Le courant électrique des câbles électriques, téléphoniques et de communication est dangereux. Pour éviter tout risque d'électrocution lors de l'installation de ce produit, déconnectez les câbles tel que montré avant d'ouvrir les couvercles de l'ordinateur. Utilisez le câble d'alimentation avec une prise correctement raccordée à la terre.

- Éteignez tous les appareils.
- Débranchez d'abord le câble d'alimentation de la prise de courant. (Au Royaume-Uni, la réglementation exige que le câble d'alimentation soit débranché après le câble téléphonique.)
- Débranchez les câbles de transmission du signal des prises femelles.
- Débranchez tous les câbles des appareils.

### Irrota laite seuraavasti:

#### Vaara:

Virta-, puhelin- ja tietoliikennejohdoissa liikkuva sähkövirta on vaarallista. Voit tätä laitetta asentaessasi välttää sähköiskut irrottamalla johtimet esitetyllä tavalla ennen tietokoneen kansion avaamista. Virtajohto on liitettävä oikein maadoitettuun pistorasiaan.

- Katkaise kaikista laitteista virta.
- Irrota virtajohto pistorasiasta. (Yhdistyneiden Kuningaskuntien lain mukaan virtajohto on irrotettava ennen puhelinjohdon irrottamista.)
- Irrota signaalkaapelit vastakkeista.
- Irrota kaikki johdot laitteista.

### כדי לנתק:

#### סכנה:

זרם חשמלי מכבלי כח, טלפון ותקשורת מהווה סכנה. כדי למנוע התחשמלות, נתק את הכבלים לפי האיור לפני פתיחת מארז המחשב לשם התקנת מכשיר זה. את כבל החשמל יש לחבר לשקע מוארק כראוי.

- כבה את כל המפסקים.
- נתק תחילה את כבל החשמל מהשקע (בבריטניה החוק דורש לנתק את כבל החשמל אחרי כבל הטלפון).
- נתק את כבלי האותות משקעיהם.
- נתק את כל הכבלים מההתקנים השונים.

### Szétcsatlakoztatás

#### Balesetvesztély:

A hálózati, telefon és kommunikációs kábelben levő elektromos áram veszélyes. Az áramütés veszélyének elhárítása érdekében, a termék beszerelésekor, a számítógép burkolatának felnyitása előtt húzza ki a vezetékeket. A hálózati vezetékek megfelelően földeltnek kell lennie.

- Kapcsoljon mindent KI.
- Először a hálózati vezetéket húzza ki az aljzatból. (Az Egyesült Királyságban előírás, hogy a hálózati vezetéket a telefonvezeték után kell szétcsatlakoztatni.)
- Húzza ki a jel-kábelt az aljzatából.
- Húzza ki az összes vezetéket a berendezésekből.

### 차단하려면 :

#### ⚠ 위험 :

전원, 전화, 통신 케이블에서 나오는 전류는 유해하다. 쇼크 위험을 없애려면 본 제품 설치를 위해 컴퓨터 뚜껑을 열기 전에 케이블을 차단한다. 전원 코드는 제대로 접지된 콘덴사와 사용돼야 한다.

- 모든 전원을 차단한다.
- 우선 콘덴사에서 전원 코드를 뺀다. (영국에서는 법으로, 전화선을 뺀 다음 전원 코드를 차단해야 한다.)
- 수신기로 부터 신축 케이블을 뺀다.
- 컴퓨터 장치에서 모든 케이블을 뺀다.

### Frakobling

#### ⚠ Fare:

Elektrisk strøm fra strøm -, telefon - og kommunikasjonskabler er farlig. For å unngå fare for støt, må du koble fra kabler, som vist, før du åpner datamaskindeksler for å installere dette produktet. Strømledningen må kun brukes i jordede stikkontakter.

- Slå alt AV.
- Trekk først ut strømledningen fra stikkontakten. (I Storbritannia sier loven at strømledningen må kobles fra etter telefonledningen.)
- Trekk ut signalkablene fra kontaktene.
- Trekk ut alle kablene fra enhetene.

### Aby rozłączyć:

#### ⚠ Ostrzeżenie:

Prąd elektryczny obecny w kablach zasilania, telefonicznych lub komunikacyjnych jest niebezpieczny. Aby uniknąć porażenia, przed otwarciem pokrywy komputera w celu zainstalowania tego wyrobu, należy odłączyć kable, jak to zostało pokazane. Musi być użyty przewód zasilania elektrycznego z odpowiednim uziemieniem.

- Wyłącz wszystko (położenie OFF).
- W pierwszej kolejności odłącz przewód zasilania elektrycznego z gniazdka. (W Wielkiej Brytanii prawo nakazuje, by przewód zasilania został odłączony po kablu linii telefonicznej).
- Wyłącz kable sygnałowe z gniazdek.
- Wyłącz wszystkie kable z urządzeń.

### Para desligar:

#### ⚠ Perigo:

A corrente eléctrica da unidade de alimentação, do telefone e dos cabos de comunicação é perigosa. Para evitar o risco de choques eléctricos, desligue o cabo de acordo com as indicações antes de abrir a caixa do computador para instalar este produto. O cabo de alimentação deve ser utilizado numa tomada devidamente ligada à terra.

- Desligue tudo.
- Primeiro, retire o cabo de alimentação da tomada. (De acordo com as leis do Reino Unido, o cabo de alimentação deve ser desligado depois do cabo da linha telefónica.)
- Retire os cabos de sinal das tomadas.
- Retire todos os cabos dos dispositivos.

### 斷開步驟 :

#### ⚠ 危險 :

動力電纜、電話電纜和通信電纜上的電流是危險的。為避免電擊危險，在打開電腦機蓋安裝本產品之前斷開電纜，如圖所示。動力電纜必須妥善接地。

- 關掉一切電源。
- 首先將動力電纜從輸出端取下。(根據英國法律規定，動力電纜必須在電話電纜之後斷開。)
- 從插座上取下信號電纜。
- 從裝置上取下所有電纜。



### ***Izključenje:***

#### **⚠ Nevarnost:**

Struja iz električnega, telefonskega ali komunikacijskega voda je nevarna. V namenu, da se izognete šoku, izključite vode, kot kaže slika, preden dvignete računalniške pokrove, da bi napravo instalirali. Strujni vod je treba uporabljati s primerno ozemljitvijo.

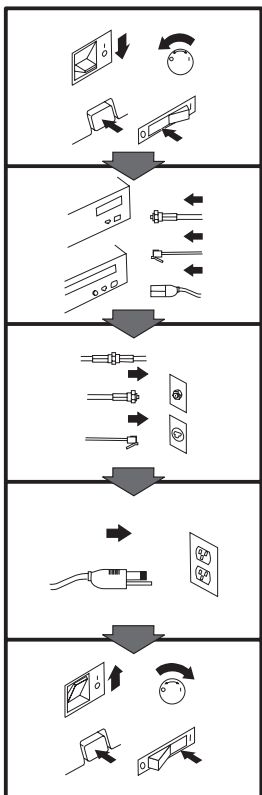
- Izključite vse (na "OFF").
- Najprej odstranite strujni vod iz izhodnega vtikaljšča. (V Veliki Britaniji je po zakonu treba strujni vod izključiti po telefonskem vodu).
- Odstranite signalne vode iz sprejemnikov.
- Odstranite vse vode iz naprav.

### ***Urkoppling***

#### **⚠ Fara:**

Ström från el-, tele- och kommunikationskablar måste behandlas med försiktighet. För att undvika att få en elektrisk stöt måste du innan du öppnar höljet på datorn koppla ur kablarna enligt beskrivningen nedan. Strömkabeln måste alltid användas i ett jordat uttag.

- Stäng av allting.
- Ta först ur strömkabeln från strömuttaget. (I Storbritannien måste enligt lag strömkabeln tas ur efter telefonkabeln.)
- Ta bort signalkablarna från uttagen.
- Ta bort alla kablarna från enheterna.



### **To Connect:**

#### **⚠ Danger:**

Electrical current from power, telephone, and communication cables is hazardous. To avoid shock hazard, connect cables as shown after closing the computer covers. The power cord must be used with a properly grounded outlet.

- Turn everything OFF.
- Attach all cables to devices. (In the U.K., by law, the telephone cable must be connected after the power cord.)
- Attach signal cables to receptacles.
- Attach power cord to outlet.
- Turn device ON.

### **Vor dem Anschließen:**

#### **⚠ Vorsicht:**

Befolgen Sie die folgenden Schritte, um gesundheitliche Schäden durch stromführende Telefon- und Verbindungskabel auszuschließen. Um eine Berührungsspannung zu vermeiden, Kabel nach dem Schließen der Computerabdeckungen, wie abgebildet, anschließen. Das Netzkabel darf nur an eine ordnungsgemäß geerdete Steckdose angeschlossen werden.

- Schalten Sie alle Geräte AUS.
- Schließen Sie alle Kabel an die Geräte an.
- Schließen Sie die Signalkabel an die dafür vorgesehenen Anschlußbuchsen an.
- Verbinden Sie das Netzkabel mit der Steckdose.
- Schalten Sie das Gerät EIN.

### **Avant de vous connecter**

#### **⚠ Danger:**

Le courant électrique des câbles électriques, téléphoniques et de communication est dangereux. Pour éviter tout risque d'électrocution, connectez les câbles comme indiqué après avoir replacé les capots de l'ordinateur. Il convient d'utiliser le câble d'alimentation avec une prise correctement raccordée à la terre.

- Mettez tous les appareils hors tension.
- Raccordez l'ensemble des câbles aux périphériques. (Au Royaume-Uni, la législation exige que le câble téléphonique soit branché après le câble d'alimentation).
- Raccordez les câbles de signalisation aux prises femelles.
- Raccordez le câble d'alimentation à la prise de courant.
- Mettez les appareils sous tension.

### **Para conectarse**

#### **⚠ Peligro:**

La corriente eléctrica procedente de cables de alimentación, teléfono y comunicaciones es peligrosa. Para evitar descargas eléctricas, conecte los cables tal y como se muestra después de cerrar las cubiertas del ordenador. El cable de alimentación debe utilizarse con una toma debidamente conectada a tierra.

- Desconecte todo.
- Conecte todos los cables a los dispositivos. (En el Reino Unido, la legislación determina que el cable de teléfono se conecte después del cable de alimentación.)
- Conecte los cables de señal de los receptáculos correspondientes.
- Conecte el cable de alimentación a una toma.
- Active el dispositivo.

接続時：

⚠ 危険：

電源、電話及び通信ケーブルからの電流は危険なものです。電気ショックの危険を避けるために、コンピューターのカバーを取り付け後に、次の順序でケーブルを接続してください。

- すべての電源を切ってください。
- すべてのケーブルを装置に接続してください。
- コネクタに通信ケーブルを接続してください。
- コンセントに電源コードを接続してください。
- 装置の電源を入れてください。

**Per collegare:**

⚠ Pericolo

La corrente elettrica che attraversa i cavi di alimentazione, i cavi telefonici e i cavi per le comunicazioni è pericolosa. Per evitare il rischio di scosse elettriche, collegare i cavi nel modo qui indicato solo dopo aver chiuso l'elaboratore con il coperchio. Il cavo di alimentazione deve essere inserito in una presa elettrica collegata correttamente a terra.

- Spegnerne tutto (posizione OFF).
- Collegare tutti i cavi ai dispositivi. (nel Regno Unito, per disposizione di legge, è obbligatorio collegare il cavo telefonico dopo aver collegato il cavo di alimentazione).
- Collegare i cavi di segnale agli appositi connettori.
- Collegare il cavo di alimentazione a una presa elettrica
- Accendere la periferica (posizione ON)

**Para ligar:**

⚠ Perigo:

A corrente elétrica da unidade de alimentação, do telefone e dos cabos de comunicação é perigosa. Para evitar o risco de choques elétricos, ligue os cabos de acordo com as instruções relativas à instalação depois de fechar as tampas do computador. O cabo de alimentação deve ser usado numa tomada devidamente ligada à terra.

- Desligue tudo
- Ligue os cabos aos dispositivos. (De acordo com as leis do Reino Unido, o cabo de alimentação deve ser desligado depois do cabo da linha telefônica.)
- Ligue os cabos de sinal aos receptáculos.
- Ligue o cabo de alimentação à tomada.
- Ligue o dispositivo.

**Připojení:**

⚠ Výstraha:

Elektrický proud ze síťových, telefonních a komunikačních kabelů je nebezpečný. Abyste předešli úrazu elektrickým proudem, kabely dle obrázku připojte až po uzavření krytů počítače. Síťový kabel musí být použit s řádně uzemněnou zásuvkou.

- Vypněte všechna zařízení.
- Připojte všechny kabely periferních zařízení. (Ve Spojeném království musí být podle zákona telefonní přípojka připojena až po připojení síťového kabelu).
- Připojte signálové kabely.
- Připojte síťový kabel do zásuvky.
- Zapněte přístroj.

**Læs følgende inden tilkobling:**

⚠ Fare:

Elektrisk strøm fra strømførende kabler og telefon- og kommunikationskabler er farlig. For at undgå elektrisk stød skal du sørge for at koble kablerne til som vist, før du lukker computerens dæksler igen. Den strømførende ledning skal tilsluttes en javdet stikkontakt.

- SLUK for alt.
- Tilslut alle kabler til enheder. (I Storbritannien skal telefonkablet tilsluttes efter den strømførende ledning iflg. lov).
- Tilslut signalkabler til kontakter.
- Tilslut den strømførende ledning til stikkontakten.
- TÆND for enheden.

### Aansluiten

#### Gevaarlijk:

Elektrische stroom afkomstig uit netsnoeren, telefoonkabels en communicatiekabels kan gevaarlijk zijn. Ter voorkoming van elektrische schokken, moet u nadat de computer dichtgemaakt is de kabels, zoals afgebeeld, aansluiten. Sluit het netsnoer altijd aan op een geaard stopcontact.

- Zet alles UIT.
- Bevestig de snoeren aan de apparaten. (In het Verenigd Koninkrijk bent u wettelijk verplicht eerst het netsnoer en pas dan de telefoonkabel aan te sluiten.)
- Bevestig de signaalkabels in de juiste ingangen.
- Steek de stekker van het netsnoer in het stopcontact.
- Zet het apparaat AAN.

### Pour connecter

#### Danger:

Le courant électrique des câbles électriques, téléphoniques et de communication est dangereux. Pour éviter tout risque d'électrocution, connectez les câbles tel que montré après avoir fermé les couvercles de l'ordinateur. Utilisez le câble d'alimentation avec une prise correctement raccordée à la terre.

- Mettez tous les appareils hors tension.
- Raccordez tous les câbles aux appareils. (Au Royaume-Uni, la réglementation exige que le câble téléphonique soit branché après le câble d'alimentation.)
- Raccordez les câbles de transmission du signal aux prises femelles.
- Raccordez le câble d'alimentation à la prise de courant.
- Mettez l'appareil sous tension.

### Kytke seuraavasti:

#### Vaara:

Virta-, puhelin- ja tietoliikennejohdoissa liikkuva sähkövirta on vaarallista. Voit välttää sähköiskut liittämällä johdot esitetyllä tavalla, sen jälkeen kun olet sulkenut tietokoneen kannet. Virtajohto on liitettävä oikein maadoitettuun pistorasiaan.

- Katkaise kaikista laitteista virta.
- Liitä kaikki johdot laitteisiin. (Yhdistyneiden Kuningaskuntien lain mukaan virtajohto on liitettävä ennen puhelinjohdon irrottamista.)
- Liitä signaaliikaapelit vastakkeisiin.
- Liitä virtajohto pistorasiaan.
- Kytke laitteeseen virta.

### כדי לחבר:

#### סכנה:

זרם חשמלי מכבלי כח, טלפון ותקשורת מהווה סכנה. כדי למנוע התחשמלות, חבר את הכבלים לפי האיור אחרי סגירת מארזי המחשב. את כבל החשמל יש לחבר לשקע מוארק כראוי.

- כבה את כל המפסקים.
- חבר את כל הכבלים להתקנים (בבריטניה החוק דורש לחבר את כבל הטלפון אחרי כבל החשמל).
- חבר את כבלי האותות לשקעייהם.
- חבר את כבל החשמל לשקע.
- הדלק את המכשיר.

### Csatlakoztatás:

#### Balesetveszély:

A hálózati, telefon és kommunikációs kábelben levő elektromos áram veszélyes. Az áramütés veszélyének elhárítása érdekében csak a számítógép burkolatának bezárása után csatlakoztassa a vezetékeket. A hálózati vezetéknek megfelelően földeltnek kell lennie.

- Kapcsoljon mindent KI.
- Csatlakoztassa a vezetékeket a berendezésekhez. (Az Egyesült Királyságban előírás, hogy a telefonvezeték a hálózati vezeték után kell csatlakoztatni.)
- Csatlakoztassa a jelkábel az aljzatába.
- Csatlakoztassa a hálózati vezetéket az aljzatába.
- Kapcsolja BE a készüléket.

연결하려면 :

⚠ 위험 :

전원, 전화, 통신 케이블에서 나오는 전류는 유해하다. 쇼크 위험을 없애려면 본 제품 설치를 위해 컴퓨터 뚜껑을 닫은 후에 케이블을 연결한다. 전원 코드는 제대로 집지된 콘덴사와 사용돼야 한다.

- 모든 전원을 차단한다.
- 장치에 모든 케이블을 연결한다. (영국에서는 법으로, 전화선을 먼저 연결한 다음 전원코드를 연결해야 한다.)
- 수신기에 신호 케이블을 연결한다.
- 콘덴사에 전원 코드를 연결한다.
- 컴퓨터 장치를 켜다.

**Tilkobling**

⚠ Fare:

Elektrisk strøm fra strøm-, telefon- og kommunikasjonskabler er farlig. For å unngå fare for støt, må du koble til kabler, som vist, etter at datamaskindekslene er lukket. Strømledningen må kun brukes i jordede stikkontakter.

- Slå alt AV.
- Koble alle kablene til enhetene. (I Storbritannia sier loven at telefonledningen må kobles til etter strømledningen.)
- Sett signalkablene i kontaktene.
- Sett strømledningen i stikkontakten.
- Slå apparatet PÅ.

**Aby podłączyć:**

⚠ Ostrzeżenie:

Prąd elektryczny obecny w kablach zasilania, telefonicznych lub komunikacyjnych jest niebezpieczny. Aby uniknąć niebezpieczeństwa porażenia, po zamknięciu pokryw komputera podłącz kable jak to zostało pokazane. Musi być użyty przewód zasilania elektrycznego z odpowiednim uziemieniem.

- Wyłącz wszystko (położenie OFF)
- Podłącz wszystkie kable do urządzeń (W Wielkiej Brytanii prawo nakazuje by kabel linii telefonicznej został podłączony po przewodzie zasilania).
- Podłącz kable sygnałowe do gniazdek.
- Podłącz przewód zasilania do gniazdka.
- Włącz urządzenie. (Polożenie ON).

**Para ligar:**

⚠ Perigo:

A corrente eléctrica da unidade de alimentação, do telefone e dos cabos de comunicação é perigosa. Para evitar o risco de choques eléctricos, ligue os cabos de acordo com as indicações antes de fechar a caixa do computador. O cabo de alimentação deve ser utilizado numa tomada devidamente ligada à terra.

- Desligue tudo.
- Ligue os cabos aos dispositivos. (De acordo com as leis do Reino Unido, o cabo do telefone deve ser ligado depois do cabo de alimentação.)
- Ligue os cabos de sinal as tomadas.
- Ligue o cabo de alimentação à tomada.
- Ligue o dispositivo.

**連接步驟 :**

⚠ 危險 :

動力電纜、電話電纜和通信電纜上的電流是危險的。為避免電擊危險，在蓋上電腦機蓋之後連接電纜，如圖所示。動力電纜必須妥善接地。

- 關掉一切電源。
- 將所有電纜連接於裝置。(根據英國法律規定，電話電纜必須在動力電纜之前連接。)
- 將信號電纜連接於插座。
- 將動力電纜連接於輸出端。
- 打開裝置電源。

### ***Vključenje:***

#### **⚠ Nevarnost:**

Struja iz električnih, telefonskih in komunikacijskih vodov je nevarna. Da se izognete šoku, vključite vode, kot kaže slika, po tem, ko ste zaprli računalniške pokrove. Strujni vod je treba uporabljati s primerno ozemljitvijo.

- Izključite vse (na "OFF").
- Priključite vse vode na napravo. (V Veliki Britaniji je po zakonu treba telefonski vod vključiti po strujnem vodu).
- Priključite signalne vode sprejemnikom.
- Priključite električni vod izhodnemu vtikalšču.
- Vključite napravo (na "ON").

### ***Anslutning***

#### **⚠ Fara:**

Ström från el-, tele- och kommunikationskablar måste behandlas med försiktighet. För att undvika att få en elektrisk stöt måste du sedan du stängt höljet på datorn ansluta kablarna enligt beskrivningen nedan. Strömkabeln måste alltid användas i ett jordat uttag.

- Stäng av allting.
- Anslut alla kablarna till enheterna. (I Storbritannien måste enligt lag telefonkabeln anslutas efter strömkabeln.)
- Anslut signalkablarna till uttagen.
- Anslut strömkabeln till strömuttaget.
- Slå på enheten.

## Appendix B. Product specifications

This appendix includes the the following specifications and requirements:

- Physical specifications
- Power requirements
- Drive performance
- Environmental requirements

### Physical Specifications

The physical specifications<sup>5</sup> of the IBM 6X DVD-ROM Internal IDE Option Kit are listed in the following table.

<i>Physical Specifications</i>	
Height	42 mm (1.7 in.)
Width	146 mm (5.75 in.)
Length	203 mm (8.0 in.)
Weight	1.0 kg (2.2 lb.)

### Power Requirements

The following table lists the power specifications by voltage level for the IBM 6X DVD-ROM Internal IDE Option Kit. The power specifications are measured at the tape-drive power connector and are nominal values.

<i>Power Specifications</i>		
	+12 V	+5 V
Voltage tolerance	+ or -10 %	+ or -5 %
Operational current (idle)	300 mA	630 mA
Standby current	2 mA	150 mA
Operational current (seek)	1.2 A max	500 mA max
Power sequence	None	None
Ripple (peak to peak)	< 300 mV	< 150 mV

### Drive-Performance Specifications

The following table lists the performance specifications for the DVD-ROM drive.

<sup>5</sup> Product-description data represents IBM's design objectives and is provided for comparative purposes; actual results might vary, based on a variety of factors. This product data does not constitute a warranty. Data is subject to change without notice.

<sup>6</sup> The formatted capacity of 1 GB is approximately 1 000 000 000 bytes of data.

<sup>7</sup> The formatted capacity of 1 MB is approximately 1 000 000 bytes of data.

<i>Drive Performance</i>	
<b>Feature</b>	<b>Specification</b>
DVD-ROM storage capacity	Single layer: 4.7 GB/side Dual layer: 8.5 GB/side
CD-ROM storage capacity	650 MB <sup>7</sup> (Mode 1) 742 MB (Mode 2)
Sustained data transfer rate	DVD-ROM: 8.11 MB per second maximum CD-ROM: 3600 KB per second maximum
Burst data transfer rate	16.6 MB per second maximum (PIO Mode 4, DMA MW Mode 2)
Access time (including latency)	DVD-ROM: Average: 180 ms CD-ROM: Average: 120 ms
Data error rate	DVD-ROM: <10 <sup>-7</sup> CD-ROM: <10 <sup>-7</sup> (Mode 1)/<10 <sup>-6</sup> (Mode 2)
Spin up time from power on	<15 seconds
Spin up time from sleep mode	<3 seconds

## Environmental Requirements

The following table lists the environmental specifications for the DVD-ROM drive. You can mount the drive either vertically or horizontally.

<i>Environmental Requirements</i>		
<b>Specification</b>	<b>Operational</b>	<b>Nonoperational</b>
Ambient temperature	+5° to +45°C (+41° to +113°F <sup>8</sup> )	-30° to +60°C (-22° to +140°F <sup>9</sup> )
Thermal gradient	10°C per hour (no condensation) (approx. 18°F per hour)	10°C per hour (no condensation) (approx. 18°F per hour)
Relative humidity	15% to 85% noncondensing <sup>8</sup>	10% to 90% noncondensing <sup>9</sup>
Max wet bulb temperature	29°C (84.2°F)	No condensation
Vibration	5 to 300 Hz	0.20 g max
Shock	<50 g	

<sup>8</sup> Mechanism and media

<sup>9</sup> Mechanism



## Appendix C. Customizing device driver configuration settings

**Attention:** After you install the *6X DVD-ROM Internal IDE Drive Option Diskette*, you can use a DOS session in Windows 3.x, DOS, OS/2, Windows 98, and Windows 95 to access the drive as a CD-ROM drive.

This section contains optional configuration information for the *6X DVD-ROM Internal IDE Drive Option Diskette* device drivers for Windows 3.x, DOS, OS/2 and Windows 98 and 95. Use the online help during the installation and refer to the READ.ME file on the *6X DVD-ROM Internal IDE Drive Option Diskette* for additional information.

Requirements vary, and you might need to customize the configuration that the CDSETUP program installs on your computer. This section provides information and describes the parameters that you might need to change or add.

### Changing device driver parameters for DOS and Windows

Most computers will function adequately with the default settings for the IBMIDECD.SYS device driver file. However, there are some parameters that can be changed if necessary. This section explains the function of each parameter. Use a text editor to modify the appropriate line in your CONFIG.SYS file. For the IBMIDECD.SYS device driver file, the line in CONFIG.SYS is in the following format:

```
DEVICE=[drive:][path]IBMIDECD.SYS /D:device name  
        [/P:xxx,yy] [/A:n] [/U:n]  
        [/L:xx] [/T:n] [/I:n]
```

(Do not truncate the actual device driver entry. Place the complete DEVICE= on one line in the CONFIG.SYS file.)

```
[drive:][path]IBMIDECD.SYS
```

The above parameter specifies the location (drive and directory) and name of the device driver file.

Use the following options to configure the device driver.

#### **/D:***device name*

This parameter specifies the device name of the CD-ROM drive. This name must be identical to the device name specified in the MSCDEX.EXE parameters, as shown:

```
DEVICE=C:\IBMIDECD.SYS /D:IBMCD1
```

#### **/P:***xxx,yy*

This parameter specifies the address and interrupt level of the port to which the IDE CD-ROM drive is connected.

The device driver automatically checks the industry standard primary IDE port (address 1F0, interrupt 14) and secondary IDE port (address 170, interrupt 15). The */P* parameter is not needed if your CD-ROM drive is connected to either of these ports. However, if your computer (or IDE adapter) uses different IDE port addresses or interrupts, you must use this option. Refer to the instructions that come with your computer or IDE adapter for more information about the configuration of your computer or adapter.

*xxx* is the base address of the IDE port.

1F0 for the primary IDE port (Port 1)  
170 for the secondary IDE port (Port 2)

*yy* is the interrupt (IRQ) level.

14 for the primary IDE port (Port 1)  
15 or 10 for the secondary IDE port (Port 2)

When four drives are connected, for example, the syntax in the CONFIG.SYS file would be:

```
DEVICE=C:IBMIDECD.SYS /D:IBMCD1 /P:1F ,14
/P:17 ,15 /P:1E ,12 /P:16 ,1
```

(Do not truncate the actual device driver entry. Place the complete DEVICE= on one line in the CONFIG.SYS file.)

#### **/A:n**

This parameter specifies the audio play mode. For a stereo CD, you can type /A:0 or /A:1. For a monaural CD (left or right channel only), type /A:1 in order to play the monaural audio signal from the right and left channels. The default is *n*=0.

#### **/U:n**

This parameter specifies if your computer initializes with the CD tray unlocked or locked. /U:0 initializes with the tray *unlocked*. /U:1 initializes with the tray *locked*. The default command is *n*=0. This command might be used if you want to secure your CD in the drive.

#### **/L:xx**

This parameter specifies the message language where *xx* designates the language.

<b>US</b>	English (default, does not need to be specified)
<b>GR</b>	German
<b>FR</b>	French
<b>SP</b>	Spanish
<b>IT</b>	Italian
<b>JP</b>	Japanese

#### **/T:n**

This parameter specifies time delays to be built into the IDE read loop. Use this parameter only in computers that do not support the IOCHRDY signal on the IDE bus, and in computers that read from the IDE port faster than the CD-ROM can provide data. This parameter is usually not required in most computers.

*n* is a relative timing parameter that depends on processor speed. When the value of *n* increases, the drive data-transfer rate decreases. Valid values for *n* are 0 through 99. The default for *n* is 0, and the /T parameter is not required.

***/I:n***

This parameter enables interrupt sharing. If  $n=1$ , interrupt sharing is enabled. If  $n=0$ , interrupt sharing is disabled. The default value is  $0$ . Set this parameter to enabled when the IDE interrupt must be shared with another device. For example, a PS/2 9577 computer with IDE could share interrupt 14 with the IBM SCSI Adapter /A.

## Using Microsoft CD-ROM Extensions

Microsoft CD-ROM Extensions (MSCDEX.EXE) is an executable program that works in conjunction with the device driver (IBMDIEXD.SYS) to enable your computer to read CDs as DOS-formatted disks. MSCDEX is designed for DOS and Windows.

The CDSETUP program automatically adds an MSCDEX statement to your AUTOEXEC.BAT file. You can modify the default MSCDEX parameters to customize your installation. This section explains the function of each parameter. A text editor can be used to modify the MSCDEX statement in your AUTOEXEC.BAT file.

The following is the syntax of the MSCDEX.EXE entry in AUTOEXEC.BAT where *[drive:]**[path]**MSCDEX.EXE* specifies the location (drive and directory) of the MSCDEX.EXE file.

```
[drive] [path]MSCDEX.EXE /D:device_name
[/M:i] [/E] [/V] [/L:drive_letter]
[/K][/S]
```

(Do not truncate the actual device driver entry. Place the complete entry on one line in the AUTOEXEC.BAT file.)

Use the following options to configure the device driver.

***/D:device name***

This parameter specifies the name of the CD-ROM drive (eight characters maximum). This name must be identical to the device name specified in the device driver in the CONFIG.SYS file. For example:

```
C:\MSCDEX.EXE /D:IBMCD1
```

You might support multiple CD-ROM drives (of different types) by installing each of their device drivers (naming them different names) and placing a */D:device name* in the MSCDEX line for each drive. For example, if you wanted to support an IBM IDE CD-ROM drive and an IBM SCSI CD-ROM drive, your CONFIG.SYS file might have these statements:

```
DEVICE=C:\IBMDIEXD.SYS /D:IDE_CD
DEVICE=C:\IBMCDROM.SYS /D:SCSI_CD
```

and your AUTOEXEC.BAT file could include this statement:

```
C:\MSCDEX /D:IDE_CD /D:SCSI_CD
```

***/M:nn***

This parameter specifies the number of sector buffers for temporary storage of the most recent CD data. For example, to specify 12 sector buffers you would use:

```
C:\MSCDEX.EXE /D:IBMCD1 /M:12
```

The CDSETUP program sets this value to 10. The default value for MSCDEX with no /M parameter is 4.

You can improve CD-ROM drive performance when you use larger default values. However, each buffer uses about 2 KB of

memory, and too many buffer specifications might slow down your computer or interfere with other programs that have large memory-usage requirements. You might be able to specify a larger number of buffers to enhance CD-ROM drive performance without adversely affecting programs that have large memory-usage requirements if you use expanded memory (see the /E option in this section) or if you load MSCDEX.EXE into high memory using instructions given in the documentation that comes with your operating system or with the memory manager.

#### **/E**

This parameter instructs the computer to use expanded memory, if available. For example:

```
C:\MSCDEX.EXE /D:IBMCD1 /E
```

Note that you must first load an expanded memory device driver before using this option. If no expanded-memory device driver is loaded, the following error message displays:

```
Expanded Memory not present or not usable.
```

#### **/V**

This parameter instructs the computer to display a summary of RAM allocation and expanded memory usage at startup time.

#### **/L:drive letter**

This parameter specifies the drive letter to be assigned to the first CD-ROM drive. Do not assign a letter already used by an existing drive or your computer will not be able to access the CD-ROM drive. For example, you might use:

```
C:\MSCDEX.EXE /D:IBMCD1 /L:F
```

Normally, the CD-ROM drive is assigned to the next available drive letter after devices such as diskette drives and hard disk drives. Therefore, you use this option only if you wish to assign a drive letter beyond the last letter previously allocated by DOS.

#### **/K**

This parameter instructs MSCDEX.EXE to use Kanji (Japanese) file structures, if present, rather than the default alphanumeric file structures.

#### **/S**

This parameter instructs MSCDEX.EXE to allow networked computers to share CD-ROM drives.

### **Conserving DOS conventional memory**

If the CD-ROM drive-support software is loaded in DOS conventional memory (below 640 KB RAM), there might be insufficient memory to run some DOS applications. The CDSETUP program attempts to load the IDE CD-ROM drive device driver and MSCDEX into upper memory, when possible, to avoid this problem.

For more information on techniques to conserve conventional memory, refer to the following topics in the documentation that comes with your operating system:

DOS=UMB, DOS=HIGH,UMB (CONFIG.SYS entry)

This command enables the use of upper memory and loads DOS, MSCDEX, and the IDE CD-ROM device driver in upper memory.

HIMEM.SYS (CONFIG.SYS entry)

This is a device driver that manages extended memory (RAM memory above 1 MB). Windows automatically loads this device driver.

EMM386.EXE (CONFIG.SYS entry)

This is a device driver that allows the extended memory made available by HIMEM.SYS to be used as expanded memory. The MSCDEX /E parameter might be used in conjunction with this device driver to move the cache allocated by MSCDEX into this memory, thus freeing some conventional memory.

MEM /C /P (use from DOS prompt)

This is a useful DOS utility that will display the current memory allocation in your computer to help you understand where device drivers and programs are located. To display the MEM parameters available, at the DOS prompt type mem/?

## Enhancing performance in DOS and Windows

The following two procedures can enhance CD-ROM drive performance.

1. Allocate more MSCDEX cache (see /M parameter for MSCDEX).
2. Allow SMARTDRV to cache CD-ROM accesses.

The CDSETUP program disables the cache CD-ROM data function. Multisession CDs are not compatible with the SMARTDRV caching method. If you do not plan to use PhotoCD or multiple-session CDs, you can enable caching by removing the /U parameter from the SMARTDRV line in your AUTOEXEC.BAT or CONFIG.SYS file. This might improve the performance of some CD-ROM applications. You must have SMARTDRV 5.0 or later to cache CD-ROM data.

## Updating the device driver for a DOS network server

If you are using the DVD-ROM drive in a DOS Network server you need to make the following changes:

1. Add the /S parameter to the MSCDEX line in the AUTOEXEC.BAT file.
2. Verify that the MSCDEX line is located after the line that loads the network services (NET START for IBM PC LAN program).
3. Do one of the following, depending on your operating system:

If you are using DOS 3.3, be sure you have *PC Local Area Network (LAN) Program Corrective Service Diskette* level IP00755 or later installed.

If you are using DOS 4.0, be sure you have *DOS Corrective Service Diskette* level UR 29015 or later installed. (The computer cannot be configured as an Extended Services Domain Controller for the IBM PC LAN Program.)

Contact your IBM reseller for more information about the *PC LAN Program Corrective Service Diskette* or the *DOS Corrective Service Diskette*.

### Changing the device driver for OS/2

You might need to customize the setup that the DDINSTAL file has installed on your computer in order to meet your requirements. This section provides information and describes parameters that you might need to change or add for your installation.

OS/2 uses the OS2CDROM.DMD device driver

```
DEVICE=OS2CDROM.DMD [Options]
```

to control all CD-ROM devices. The following parameters are available:

**/V** Instructs the computer to display the installation details.

**/Q** Suppresses messages during initialization.

### Changing the OS/2 device driver filter

OS/2 uses the device driver filter IBMIDECD.FLT for ATAPI (IDE) CD-ROM drives.

```
BASEDEV=IBMIDECD.FLT [Options]
```

The following parameter is available:

**/V** Instructs the computer to display installation details.

### Changing the OS/2 installable file system driver

The file system device driver for OS/2 is CDFS.IFS. The following parameters are available:

**/C:n** Indicates how many 64 KB RAM segments will be used for the sector cache. The default is (/C:2) two 64 KB RAM segments.

**/M:n** Indicates the maximum number of file sectors to be read at a time. The default is eight sectors (/M:8).

**/K** Uses Kanji supplementary volume descriptor.

**/Q** Suppresses messages during initialization.

### Changing the OS/2 IDE adapter device driver

The following IDE device driver is available:

```
BASEDEV=IBML5 6.ADD (for ISA computers)
```

This device driver controls IDE hard disk drives and IDE CD-ROM drives. At the OS/2 command prompt, type `help IBML5 6` to see the optional parameters that are available for ISA computers.

Special parameters are required if your computer has an IDE controller that does not use a standard interrupt. Check the **/A** and **/IRQ** parameters in the OS/2 help utility.

If you have an IBM Micro Channel computer, an IDE device driver is available for Micro Channel architecture on the IBM Web site (<http://www.ibm.com>). Use the Web site search utility, and look for `IBM2IDE.ADD`.

### **Changing the Windows 98 and Windows 95 device drivers**

Windows 98 and Windows 95 have two device driver configuration parameters: Auto Insert Notify and DMA.

The Auto Insert Notify parameter enables the system to start audio CD software as soon as a CD is inserted into the CD-ROM drive.

The DMA parameter improves system performance by having the system DMA controller take responsibility for moving data from the CD to memory, freeing the system CPU to perform more important tasks. For example, activating DMA might make movies and games run more smoothly because the CPU will have more time to concentrate on video.

### **Changing the Auto Insert Notify and DMA parameters**

To change these parameter settings from the Windows 98 or Windows 95 desktop:

1. Click **Start**.
2. Select **Settings**.
3. Click **Control Panel**.
4. Double-click **System**.
5. Select **Device Manager**.
6. Double-click **CD-ROM**.
7. Click **Properties**.
8. Select **Settings**.
9. Click **Auto Insert Notification** or **DMA**.
10. Click **OK**.

## ***Appendix D.*** ***Problem solving***

Computer problems can be caused by hardware, software, or user error. Using the information in this section, you might be able to solve problems yourself or gather helpful information you can pass on to a service technician. You might also need to refer to your computer, operating-system, or sound-adaptor publications.

Review the following list for any problem descriptions that might fit your situation.

**Your computer or DVD-ROM drive does not operate correctly or the busy indicator light does not come on.**

Take the following actions.

1. Check that the disc is loaded with the label side up.
2. Check that all devices are properly connected to the computer and the power outlet.
3. Turn off the computer, unplug the cables from the power outlets for your computer and all attached devices, and remove the computer cover.
4. Check that all power and IDE cables are securely attached. Disconnect the IDE cable and check for bent or misaligned pins. If you do not find any problems, reconnect the interface cable. Replace the computer cover, and reattach all cables and power cords. Turn on the computer, restart the system, and attempt to open the loading tray by pressing the Eject/Load button. If the tray fails to open and the busy indicator light does not display, turn off the computer and try using another 4-pin dc power cable.
5. Check that the color-coded edge on the IDE cable aligns with pin 1 on the IDE port and is closest to the power cable on the DVD-ROM drive. See “Step 7. Attaching the cables to the drive” on page 1-5.
6. Check the DVD-ROM drive and any other device on the IDE cable for the proper settings. See “Step 4. Setting the configuration jumper” on page 1-4 for more information.
7. If the middle connector on the IDE cable is attached to the IDE port on the system board, remove the connector and reattach the

cable. If there is only one device on the IDE port, attach the connector at one end of the cable to the IDE port and the connector at the other end to the device, leaving the middle connector (if there is one) open.

If there are two devices on the IDE port, attach the connector at one end of the cable to the IDE port. If there is a hard disk drive, attach it to the connector at the other end of the cable and attach the DVD-ROM drive to the middle connector.



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**You cannot access the DVD-ROM drive or the DVD-ROM icon does not display.**

When the DVD-ROM drive is properly installed, a DVD-ROM icon will be found in the **My Computer** window. Double-click **My Computer**. If a DVD-ROM icon is not present in the window that displays, make sure that the drive has been properly installed. Make sure that the configuration jumper is set properly. See “Step 4. Setting the configuration jumper” on page 1-4. Restart your system. If a drive icon is still not found, continue with the following steps.

1. Click on the **Start** button, and point to **Settings**. The Settings window will be displayed.
2. Click on **Control Panel**.
3. Click on **System**.
4. Click on the **Device Manager** tab.
5. Double-click on **View Devices by Type**.
  - a. Click on **Hard Disk Controllers** to select it from the **Device Manager** list. Make sure that there are no conflicts with the controller. The device status should indicate that the controller is working properly.
  - b. Select **CD-ROM** from the Device Manager list. A CD-ROM device should be present, and no conflicts should exist. The device status should indicate that the device is working properly.
6. Click on **OK**.

7. Shut down and restart the computer.

If the device icon is still not present, check cable connections, device jumper settings, and resolve any conflicts that may exist.

---

**The DVD-ROM drive is not recognized by the operating system or the drive performs erratically.**

Some computers have a *compatible* and a *high performance* mode for mass storage devices. Normally, the DVD-ROM drive functions better under *high performance* mode. However, if your drive is not functioning properly in that mode, you might need to use *compatible* mode.

Check the configuration-setup information for your computer.

1. Access your configuration utility program.
2. Select **Devices**.
3. Scroll down to the **Mass Storage Devices** section.
4. **Mass Storage Devices** contains the entries **Primary IDE Mode** and **Secondary IDE Mode**. These entries are used to set the performance mode of each IDE port. Set the mode to **Compatible** for the port on which you installed your DVD-ROM drive.

Refer to the documentation that comes with your computer for additional details on selecting IDE performance modes.

---

**The computer does not recognize the DVD-ROM drive after the device drivers are loaded.**

Check for incompatibilities among the DVD-ROM drive device driver and other device drivers or other hardware in your computer. Create a System Diskette with minimum CONFIG.SYS and AUTOEXEC.BAT system files.

1. Before creating special CONFIG.SYS and AUTOEXEC.BAT files, make a backup copy of these files in a convenient directory, (if you have not already done so).

Type **copy CONFIG.SYS CONFIG.IBM** and press **Enter**.

Type **copy AUTOEXEC.BAT AUTOEXEC.IBM** and press **Enter**.

2. Create a System Diskette and copy the device drivers onto it.
3. Create a System Diskette to support only the DVD-ROM drive.
4. Turn off the computer and check that the System Diskette is in the diskette drive.
5. Restart the computer (the computer will start up from the System Diskette).
6. Observe the startup messages and check that the device driver, IBMIDECD.SYS, loads. When MSCDEX loads, observe the drive letter that the computer assigns to the DVD-ROM drive.
7. Load a data disc into the loading tray; then wait until the busy indicator is not lit.

8. Attempt to read the disc by typing **dir x:** where *x* is the DVD-ROM drive assigned after the MSCDEX message.

If the computer is able to read the disc, a conflict probably exists among the device drivers loaded in either the CONFIG.SYS or AUTOEXEC.BAT files. You need to resolve this device conflict. Refer to the documentation that comes with your computer for more information on resolving device conflicts.

If you are unable to access the disc, you might have a hardware problem. If you are unable to read the disc or a drive letter is not assigned by MSCDEX, go to the next step.

9. Turn off the computer, unplug the cables from the power outlets for your computer and all attached devices, and remove the computer cover.
10. Disconnect the IDE and power cable for all IDE devices except the DVD-ROM drive.
11. Configure the DVD-ROM drive as a master and connect it to the last IDE connector on the primary IDE port.
12. Reinstall the computer cover. Reconnect the keyboard; plug the power cords into electrical outlets.
13. Place the System Diskette in the diskette drive and a data disc in the DVD-ROM drive.
14. Restart the computer.

15. Attempt to read the disc by typing **dir C:**. (The DVD-ROM drive is drive C because it is the only device connected to the IDE port.)

If the computer is able to read the disc, a conflict probably exists with one of the devices that was installed on your computer. You need to resolve this device driver conflict. Check the configuration jumper settings for the other devices or refer to your device documentation.

If you are unable to access the disc, you might have a hardware problem. If the DVD-ROM drive still does not read the data disc, the DVD-ROM drive might be defective. Go to Appendix E, "Help and Service Information" on page 3-25.

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**The disc cannot be read.**

Consider the following actions.

The disc might be dirty; clean it as described in "Caring for a CD or DVD disc" on page 2-1.

The disc might be defective; try another CD.

The disc is not ISO-9660 or High Sierra Group (HSG) compatible. Check with your place of purchase.

---

**There is no sound from the CD or DVD disc.**

Consider the following actions.

Check that you are not using a data CD or DVD disc.

Adjust the volume control on the drive. See "Front view of the drive" on page 1-2 if headphones are connected to the front of the drive.

Adjust the sound-adapter volume control. See the documentation that comes with your sound adapter and audio-CD player program.

Turn off the computer, unplug the cables from the power outlets for your computer and all attached devices, and remove the computer cover. Check that the audio-signal cable connects the DVD-ROM drive with the sound adapter.

---

**You receive a common error message.**

These are actions for some common error messages.

**CDR-103**

The disc in the DVD-ROM drive is not a High Sierra or ISO 9660 format. The DVD-ROM drive does not support this format.

**CDR-101**

The "not ready reading the drive" situation occurs if you try to access the DVD-ROM drive before the drive is ready. The busy indicator comes on when you attempt to access the drive after loading a disc into the loading tray. Wait until the busy indicator is no longer lit before attempting to access the drive.

---

**The connectors on the audio cables provided do not fit the connector on your sound adapter.**

Some sound adapters might require a special cable. See the documentation that comes with your sound adapter.

You might have to separately purchase an audio cable for the DVD-ROM drive. If you are using an IBM computer or IBM sound adapter, refer to Appendix E, "Help and Service Information" on page 3-25 for assistance.

## ***Appendix E.*** ***Help and Service Information***

If you have questions about your new Options by IBM product, or require technical assistance, visit the IBM Personal Computing Support Web site at <http://www.pc.ibm.com/support>. For information about IBM, IBM PC products, or Options by IBM visit the IBM Personal Computing Web site at <http://www.pc.ibm.com>. Additionally, you can receive information from the IBM Automated Fax system at 1-800-426-3395 (in Canada, 1-800-465-3299), or from the Personal Systems Group Bulletin Board System (PSG BBS) at 1-919-517-0001. You can also get help and information through the IBM PC HelpCenter, 24 hours a day, seven days a week. Response time may vary depending on the number and nature of the calls received.

Marketing, installation, and configuration support through the HelpCenter will be withdrawn or made available for a fee, at IBM's discretion, 90 days after the option has been withdrawn from marketing. Additional support offerings, including step-by-step installation assistance, are available for a nominal fee.

During the warranty period, assistance for replacement or exchange of defective components is available. In addition, if your IBM option is installed in an IBM computer, you might be entitled to service at your location. Your technical support representative can help you determine the best alternative.

---

### **Step 1: Problem solving**

Before calling IBM technical support, try to solve the problem yourself by using the information in Appendix D, "Problem solving" on page 3-19. If you are unable to solve the problem yourself, the rest of this section contains information on how to reach your IBM technical support representative.

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### **Step 2: Preparing for the call**

To assist the technical support representative, have available as much of the following information as possible:

1. Option name
2. Option number
3. Proof of purchase
4. Computer manufacturer, model, serial number (if IBM), and manual
5. Exact wording of the error message (if any)
6. Description of the problem
7. Hardware and software configuration information for your system

If possible, be at your computer. Your technical support representative might want to walk you through the problem during the call.

---

### Step 3: Placing the call to IBM

If you call 90 days or more after the date of withdrawal or after your warranty has expired, you might be charged a fee.

For the support telephone number and support hours by country, refer to the following table or to the enclosed technical support insert. If the number is not provided, contact your IBM reseller or IBM marketing representative.

<i>Support 24 hours a day, 7 days a week</i>	
Canada	1-800-565-3344
U.S.A. / Puerto Rico	1-800-772-2227

### Additional technical support resources

Online technical support is available during the life of your product. Online assistance can be obtained through the Personal Computing Support Web site, the PSG Electronic Bulletin Board System, and the IBM Automated Fax System.

<i>Online Technical Support</i>	
IBM Personal Computing Support Web Site	<a href="http://www.pc.ibm.com/support">http://www.pc.ibm.com/support</a>
IBM PSG BBS	1-919-517-0001
IBM Automated Fax System	1-800-426-3395 1-800-465-3299 (in Canada)

## Appendix F. Warranty and notices

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### Product warranty

The following warranty information applies to products purchased in the United States, Canada, and Puerto Rico. For warranty terms and conditions for products purchased in other countries, see the enclosed Warranty insert, or contact your IBM reseller or IBM marketing representative.

International Business Machines Corporation

Armonk, New York, 10504

### Statement of Limited Warranty

*The warranties provided by IBM in this Statement of Limited Warranty apply only to Machines you originally purchase for your use, and not for resale, from IBM or your reseller. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. If you have any questions, contact IBM or your reseller.*

**Machine:** IBM 6X DVD-ROM Internal IDE Option Kit

**Warranty Period\*:** One Year

*\*Contact your place of purchase for warranty service information.*

### Production Status

Each Machine is manufactured from new parts, or new and used parts. In some cases, the Machine may not be new and may have been previously

installed. Regardless of the Machine's production status, IBM's warranty terms apply.

### The IBM Warranty for Machines

IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications. The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your receipt is the Date of Installation, unless IBM or your reseller informs you otherwise.

During the warranty period IBM or your reseller, if authorized by IBM, will provide warranty service under the type of service designated for the Machine and will manage and install engineering changes that apply to the Machine.

For IBM or your reseller to provide warranty service for a feature, conversion, or upgrade, IBM or your reseller may require that the Machine on which it is installed be 1) for certain Machines, the designated, serial-numbered Machine and 2) at an engineering-change level compatible with the feature, conversion, or upgrade. Many of these transactions involve the removal of parts and their return to IBM. You represent that all removed parts are genuine and unaltered. A part that replaces a removed part will assume the warranty service status of the replaced part.

If a Machine does not function as warranted during the warranty period, IBM or your reseller will repair it or replace it with one that is at least functionally equivalent, without charge. The replacement may not be new, but will be in good working order. If IBM or your reseller is unable to repair or replace the Machine, you may return it to your place of purchase and your money will be refunded.

If you transfer a Machine to another user, warranty service is available to that user for the remainder of the warranty period. You should give your proof of purchase and this Statement to that user. However, for Machines which have a life-time warranty, this warranty is not transferable.

## Warranty Service

To obtain warranty service for the Machine, you should contact your reseller or call IBM. In the United States, call IBM at **1-800-772-2227**. In Canada, call IBM at **1-800-565-3344**. You may be required to present proof of purchase.

IBM or your reseller will provide certain types of repair and exchange service, either at your location or at IBM's or your reseller's service center, to restore a Machine to good working order.

When a type of service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours. You represent that all removed items are genuine and unaltered. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item. Before IBM or your reseller exchanges a Machine or part, you agree to remove all features, parts, options, alterations, and attachments not under warranty service. You also agree to ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange.

You agree to:

1. obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
2. where applicable, before service is provided —
  - a. follow the problem determination, problem analysis, and service request procedures that IBM or your reseller provide,
  - b. secure all programs, data, and funds contained in a Machine, and
  - c. inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine while it is 1) in IBM's possession or 2) in transit in those cases where IBM is responsible for the transportation charges.

## Extent of Warranty

### 3-28 IBM 6X DVD-ROM Internal IDE Option Kit

IBM does not warrant uninterrupted or error-free operation of a Machine.

The warranties may be voided by misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, removal or alteration of Machine or parts identification labels, or failure caused by a product for which IBM is not responsible.

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2. the amount of any other actual direct damages or loss, up to the greater of U.S. \$100,000 or the charges (if recurring, 12 months' charges apply) for the Machine that is the subject of the claim.



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IBM 6X DVD-ROM Internal IDE Option Kit

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an IBM authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM authorized dealers. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party:

International Business Machines Corporation  
New Orchard Road  
Armonk, NY 10504  
Telephone: 1-919-543-2193

### Industry Canada Class B emission compliance statement

This Class B digital apparatus complies with Canadian ICES-003.

### Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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Der Aussteller der Konformitätserklärung ist die IBM UK, Greenock.

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